



2010 Guilford County Multi-Jurisdictional Hazard Mitigation Plan

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I. Overview

Introduction

This section provides a general introduction to the Guilford County Multi-Jurisdictional Hazard Mitigation Plan. This Multi-Jurisdictional plan has been developed by, and includes Guilford County, the cities of Gibsonville, Greensboro and High Point, the towns of Jamestown, Oak Ridge, Pleasant Garden, Sedalia, Stokesdale, Summerfield and Whitsett.

Background

Guilford County and its municipalities, which includes the cities of Gibsonville, Greensboro and High Point, the towns of Jamestown, Oak Ridge, Pleasant Garden, Sedalia, Stokesdale, Summerfield and Whitsett, are vulnerable to many natural hazards such as floods, tornadoes and hurricanes. The occurrence of these hazards is inevitable, and there is little a community can do to control the force and intensity of these events. Through hazard mitigation planning, Guilford County and its municipalities can make their communities more resistant to these hazards and more resilient in order to be able to recover when they do experience such events. By minimizing the impact of natural hazards upon our built environment, the communities can minimize the damages done by natural hazards.

As defined by the Federal Emergency Management Agency (FEMA), “Mitigation is the effort to reduce loss of life and property by lessening the impact of disasters”. This describes an ongoing effort to lessen the potential for damages from natural hazards. Through the application of mitigation technologies and practices, Guilford County and its municipalities, to include the cities of Gibsonville, Greensboro and High Point, the towns of Jamestown, Oak Ridge, Pleasant Garden, Sedalia, Stokesdale, Summerfield and Whitsett, will work diligently to ensure that fewer of its citizens become victims of such disasters.

Hazard mitigation planning offers many benefits that include:

- Saving lives and protecting property;
- Saving money
- Expediting recovery following disasters
- Reducing future vulnerability through wise development
- Expediting both pre-disaster and post disaster grant funding
- Demonstrating a firm commitment to improving community health and safety

Purpose

The purpose of the Guilford County Multi-Jurisdictional Hazard Mitigation Plan has five basic tenants:

1. To protect life, safety and property by reducing the potential for future damages and economic losses that result from natural hazards.
2. To internally and externally reinforce that Guilford County and its municipalities are committed to mitigation goals, objectives, policies and programs.
3. To serve as a guide for the implementation of goals, objectives, policies and programs.
4. To facilitate opportunities to apply initiatives for long-term disaster resistance.
5. To comply with both State and Federal requirements for local hazard mitigation plans.

The preparation and adoption of a local hazard mitigation plan is a requirement for receiving many types of mitigation and post-disaster recovery funds. The initiation and update of this multi-jurisdictional hazard mitigation plan brings the County and the municipalities into compliance with this requirement and thus eligible for disaster-related funding. Through this planning effort, the funding spent on mitigation measures will reduce the economic impact that often accompanies a significant natural hazard event. This plan is intended to be used as a guide for planning and operations and will not limit the ability of local authorities to address specific situations in light of their particular circumstances.

Scope

The Guilford County Multi-Jurisdictional Hazard Mitigation Plan will be maintained to fully address the hazards determined to be of high and moderate risk. Other risks have been evaluated and reviewed for the 2010 plan update, but due to the low risk and limited resources, some hazards will not be addressed within this plan.

The geographic scope for the plan includes all corporate city limits and unincorporated areas of Guilford County to include: cities of Gibsonville, Greensboro, and High Point and the towns of Jamestown, Oak Ridge, Pleasant Garden, Sedalia, Stokesdale, Summerfield and Whitsett. Hazards will be evaluated based on the impact to the county as a whole, and when the municipalities deviate in risk, a notation will be made.

Authority

The Guilford County Board of Commissioners and the Boards of Alderman of the municipalities included within this plan under the authority and police powers granted to counties and cities in North Carolina General Statutes (N.C. G.S. Chapter 153A and 160A) have adopted the Guilford County Multi-Jurisdictional Hazard Mitigation Plan. Upon completion of the 2010 plan update, the revised plan will be adopted by governing bodies for the County and municipalities.

This Plan has been developed and updated for 2010 to be compliant with current rules and regulations governing local hazard mitigation plans. The Plan will be routinely monitored minimally every five years, and as needed, to maintain compliance with the following legislation:

- (1) N.C.G.S. Chapter 166A: NC Emergency Management Act as amended by Senate Bill 300: An Act to Amend the Laws Regarding Emergency Management as recommended by the Legislative Disaster Response and Recovery Commission (2001).
- (2) The Robert T. Stafford Disaster Relief and Emergency Assistance Act as amended, and the Disaster Mitigation Act of 2000 (Public Law 106-309, October 30, 2000)

Participants in the Planning Process

The Guilford County Hazard Mitigation Committee met to develop the plan and resumed meetings for the 2010 plan update. The participants in the development of this Hazard Mitigation Plan, and the subsequent 2010 plan update included a representative from the following jurisdictions, who collectively serve to make up the Guilford County Hazard Mitigation Committee: the Town of Jamestown, Town of

Sedalia, Town of Pleasant Garden, City of High Point, Town of Whitsett, Town of Stokesdale, Town of Oak Ridge, City of Gibsonville, City of Greensboro, Town of Summerfield and Guilford County.

Description of the Planning Process

The Guilford County Hazard Mitigation Committee (GCHMC) initially met to organize and at that time established the planning process. For the initial planning process, the committee met with North Carolina Emergency Management's (NCEM) Hazard Mitigation Section and utilized their advice and expertise to create a single purpose plan. The result of this collaboration is that the mitigation plan will not become lost or lack the credibility it needs to be fully implemented. For the 2010 plan update process, the committee reconvened to initiate the update. The Guilford County Emergency Services Director led the process and helped to coordinate the update process and solicited the assistance of EnviroSafe Investigations and Consulting for coordination of the plan. On November 5, 2009, an initial meeting was held to outline roles and responsibilities in the plan update process. Every jurisdiction had a representative at the meeting. Each jurisdiction was required to update the information pertaining to their county, city or town and then all jurisdictions reviewed the draft of the plan and provided comments. Guilford County was responsible for the overall draft update and coordination, including updates to hazards. The representatives of each jurisdiction held several meetings and thoroughly reviewed the plan for accuracy and currency, and all updates have been incorporated into this plan update.

During the initial planning and the update process, the GCHMC operated with the understanding that the Hazard Mitigation Plan is a living document which grows and evolves as the community's experience with hazard mitigation grows, and as resources become available. The committee realized that it would be difficult to write a completed plan that documents every conceivable aspect of mitigation. However, as Guilford County's needs change, so will the hazard mitigation plan. In order to achieve the committee's goals, the initial and update processes include the following sections:

1. Hazard Identification and Analysis
2. Community Vulnerability Assessment
3. Mitigation Capabilities Assessment
4. Develop Community Goals
5. Develop Mitigation Strategies
6. Develop Interim Conclusions

Step 1: The Hazard Identification and Analysis section describes and analyzes the natural hazards present in Guilford County that can threaten its citizens and property. This section includes historical data on past hazards, hazard profiles and a risk index based upon hazard frequency, magnitude and impact. The risk index forms the basic foundation for prioritizing mitigation efforts. This section was developed utilizing assistance, guidance and research from County departments, municipalities and NCEM.

Step 2: The Community Vulnerability Assessment was completed through research and best available data. This section includes narrative descriptions on community characteristics such as geographical, economic and demographic profiles and discusses developmental trends.

Step 3: The Mitigation Capabilities Assessment provides a detailed examination of Guilford County's capacity to implement mitigation strategies and reviews existing opportunities for program enhancement. Capabilities addressed in this section include staff, organizational and technical capabilities, along with policy, fiscal, legal authority and political will power. The purpose of this assessment is to identify any shortfalls, weaknesses or conflicts in local programs that may hinder mitigation efforts and to identify local activities that can be built upon in furthering a successful community hazard mitigation program.

Step 4: Evaluation the County's past hazardous events and current development trends results in the development of community goals. These goals are broad and should be reevaluated as time passes and County and municipal capabilities and resources change.

Step 5: The mitigation strategies were used to develop mitigation objectives and actions. The committee felt that this was a prudent strategy to use the existing body of knowledge to further the mitigation goals that the County has identified.

Step 6: The interim conclusions will lead the process on the development of any additional ordinances, policies and laws to be adopted if applicable. Public and private funding sources will be sought to encourage hazard mitigation.

The first step in the update process was to determine the sections and areas of the plan that needed updating. Every section of the plan was reviewed by the county and each municipality to be sure that it was reflective of the current situation in each jurisdiction. Any repetitive sections were deleted and all historical data was brought up to date. The mitigation strategy and actions were also reviewed for currency. Necessary changes were made to sections as needed and all changes were approved by the county and municipalities.

During the draft process, all participants assisted by obtaining their local information and creating their own outreach processes. The web sites of local governments, Local Emergency Planning Committee and surveys were used to receive public comments. Many of the same tools that were used during the initial planning process were also used during the update process. The survey tool was updated using information from the last survey, and obtained better results. The changes streamlined the survey and offered more precise questions. Input for the plan was provided by all municipalities and many other groups with vested interest in the plan. The turnout for planning meetings was very positive and the public was also given ample time and opportunity to comment on the draft of the plan.

The Guilford County Hazard Mitigation Committee decided to have a single purpose plan in order to meet the Federal and State requirements. However, discussions lead the committee to pursue other plans, which were thought to be helpful in the development of this plan.

The meeting minutes and sign-in sheets for the committee meetings for the update process can be found at Appendix A.

Public Comment and Information

During the May 2004 Local Emergency Planning Committee (LEPC) meeting, the North Carolina Hazard Mitigation Planner gave a presentation on hazard mitigation planning. The presentation gave the audience first hand information on why hazard mitigation was needed and required. The representative explained the planning process, litigation, available funding and how the plan would be incorporated within the existing and future County plans.

The LEPC was chosen as a public forum because its members include representation from business, industry, first responders, news media, elected officials, state, federal, schools, other public and private agencies, neighboring communities, non-profits and private citizens.

For the 2010 plan update process, the LEPC was also used as a sounding board for the plan. When the framework of the plan update was complete, the draft was sent to the LEPC for comment. The LEPC was asked for their input and changes that were received were incorporated into the 2010 plan for submission to NCEM and FEMA.

Public Comment

For the 2010 plan update, the 2004 plan draft was loaded onto the County website and was made available for comment. The announcement of the planning process was also made on the website. The survey detailed below was used as a tool to further the information collection from the public.

Two meetings were held to receive comment from the public on the 2010 plan draft. The meetings were held on January 14th and January 21st, 2010 and were announced on the Guilford County Emergency Services website as well as in the newspaper.

Additional public input on the draft plan was solicited on the Guilford County Emergency Management website (<http://www.guilford-em.com>). The plan, public participation questionnaire and public meeting notices were all provided

In the future, as updates or changes are made, public announcements will be made. It is likely that any changes in the plan suggested by the public will be made at the next five-year plan update cycle. A record will be kept of any comments made between the plan update cycles, and will be added to the plan during the next plan update cycle. The Multi-Jurisdictional Hazard Mitigation Committee will then be responsible for reviewing all comments that have been received and determining, based on their expertise on mitigative practices, those pieces of information that should be included in the future plan updates.

Public Participation Survey

On April 1, 2004 a survey form was placed on the Guilford County Office of Emergency Management's website to solicit public comment and participation during the planning process. Public participation in the planning process is expected in order to initiate community-wide awareness of natural hazards,

resulting in the formation of a disaster-resistant community. Only three phone inquiries were received and no one filled out the survey form.

While the public participation survey did not illicit the numbers of responses that were hoped for, the County and municipality see value in soliciting as much public input as possible. Therefore, for the 2010 plan update, a modified survey was used to attempt to get valued contribution from the public. The 2009 survey was listed as a news item on the Guilford County website beginning on Monday, November 9, 2009 and was posted to the Guilford County Emergency Services website on Tuesday, November 10, 2009. The responses to this survey were much better than the 2004 survey, perhaps because of the increase in computer use since the 2004 survey. The surveys and the results can be found in Appendix B.

Copies of the 2004 and 2009 surveys, as well as the results of the participation survey, are attached in Appendix B.

Adoption of Plan

Each jurisdiction's governing body will officially adopt the Guilford County Multi-Jurisdictional Hazard Mitigation Plan. The process of plan adoption will begin once official approval has been received from NCEM and FEMA. County and municipals governments will advertise the adoption process and announce the adoption of the plan by normal notices by each governing board. An example of potential adoption verbiage that can be customized for the County and municipalities can be found in Appendix C.

II. Hazard Identification and Risk Assessment

Introduction

In this section, natural hazards are profiled to determine the likelihood of occurrence, intensity, potential impact and vulnerable geographic areas within Guilford County and its municipalities to include the cities of Gibsonville, Greensboro and High Point, and the towns of Jamestown, Oak Ridge, Pleasant Garden, Sedalia, Stokesdale, Summerfield and Whitsett.

Large events such as hurricanes, tornadoes or thunderstorms would likely affect the entire county, but there may be a small event that could be localized to municipal boundaries. Hazards within Guilford County and its municipalities could affect each jurisdiction differently. This would depend upon the severity of the event, the location of impact, time of the year, resources of the jurisdiction and other factors. It is difficult to determine the economic impact until damage assessment is completed and all factors are assessed.

Geographical Impact

Guilford County and its municipalities are likely to be equally affected by hurricanes, tornadoes, severe thunderstorms, wildfires and severe winter storms. The City of Greensboro occasionally has flooding along the North and South Buffalo Creek. This creek runs through several low-lying areas of Greensboro, which has apartments, homes and businesses that could be affected. Guilford County, including the City of High Point, has limited areas of flooding. These areas of localized flooding are present in local areas across the county, and the extent to which they flood is highly dependent on rainfall in a period of time. For more information, please see the Flash Flooding section under Hazard Identification and Risk Assessment.

Various data sources were consulted and analysis of information was conducted to determine the impact of events on the County. The National Oceanic and Atmospheric Administration (NOAA) National Climatic Database (NCD) was the primary source of data that has been collected for this plan, as it was determined to be the most comprehensive data repository in existence. In some cases, this database provided information on events over the last 50 years.

Hazards Included and Hazards Omitted

This plan identifies the hazards that could potentially affect the community, and the probability of their occurrence. In Guilford County, this includes drought, extreme temperatures, hail, floods, winter storms, hurricanes, thunderstorms, wildfires and tornadoes. The Federal Emergency Management Agency (FEMA) also requires communities to address landslides, tsunamis, dam failure and volcanoes.

Due to the extreme unlikelihood of landslides, tsunamis, dam failure, volcanoes, and tsunamis occurring in Guilford County, the County has chosen not to address them in the mitigation strategies section of the plan. Earthquakes will also not be addressed in the strategies due to the improbability of occurrence and limited resources in addressing all hazards.

Links and References

There are a variety of sources for information on the hazards that Guilford County faces and the resulting impact, both recent and potential. The list below can serve as a general list of links and

references for hazards, and where any hazard-specific references are applicable, they will be noted within the hazard sections that follow.

Storm Prediction Center (SPC): <http://www.spc.noaa.gov>

National Climate Data Center (NCDC): <http://lwf.ncdc.noaa.gov/oa/ncdc.html>

American Red Cross – Disaster Preparedness: <http://www.redcross.org/disaster/safety/guide.html>

Federal Emergency Management Agency: <http://www.fema.gov>

Guilford County Emergency Management: <http://www.guilford-em.com>

Storm Prediction Center (SPC): <http://www.spc.noaa.gov>

National Service Storms Laboratory (NSSL): <http://www.nssl.noaa.gov>

Interactive Weather Information Network: <http://iwin.nws.noaa.gov/iwin/main.html>

USA Today Weather: <http://www.usatoday.com/weather/wfront.htm>

Univ. of Illinois Weather World 2010 Project: [http://ww2010.atmos.uiuc.edu/\(Gh\)/home.rxml](http://ww2010.atmos.uiuc.edu/(Gh)/home.rxml)

Hazards

Hurricanes and Tropical Weather



A tropical cyclone is a warm-core, low pressure system without any "front" attached, that develops over the tropical or subtropical waters, and has an organized circulation. Depending upon location, tropical cyclones have different names around the world. In the:

- Atlantic/Eastern Pacific Oceans - hurricanes
- Western Pacific - typhoons
- Indian Ocean - cyclones

Regardless of what they are called, there are several favorable environmental conditions that must be in place before a tropical cyclone can form. They are:

- Warm ocean waters (at least 80°F / 27°C) throughout a depth of about 150 ft. (46 m).
- An atmosphere which cools fast enough with height such that it is potentially unstable to moist convection.
- Relatively moist air near the mid-level of the troposphere (16,000 ft. / 4,900 m).
- Generally a minimum distance of at least 300 miles (480 km) from the equator.
- A pre-existing near-surface disturbance.
- Low values (less than about 23 mph / 37 kph) of vertical wind shear between the surface and the upper troposphere. Vertical wind shear is the change in wind speed with height.

Once a tropical cyclone storm has become larger than a tropical storm and has reached hurricane strength, it will be classified according to the Saffir-Simpson Scale below.

The Saffir/Simpson Hurricane Scale

Category	Definition-Effects
1	Winds : 74-95 mph (64-82 kt) No real damage to building structures. Damage primarily to unanchored mobile homes, shrubbery, and trees. Also, some coastal flooding and

	minor pier damage.
2	Winds : 96-110 mph (83-95 kt) Some roofing material, door, and window damage. Considerable damage to vegetation, mobile homes, etc. Flooding damages piers and small craft in unprotected moorings may break their moorings.
3	Winds : 111-130 mph (96-113 kt) Some structural damage to small residences and utility buildings, with a minor amount of curtainwall failures. Mobile homes are destroyed. Flooding near the coast destroys smaller structures with larger structures damaged by floating debris. Terrain may be flooded well inland.
4	Winds : 131-155 mph (114-135 kt) More extensive curtainwall failures with some complete roof structure failure on small residences. Major erosion of beach areas. Terrain may be flooded well inland.
5	Winds : 155+ mph (135+ kt) Complete roof failure on many residences and industrial buildings. Some complete building failures with small utility buildings blown over or away. Flooding causes major damage to lower floors of all structures near the shoreline. Massive evacuation of residential areas may be required.

History of Tropical Weather Events in Guilford County (1950 – 2009)

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088>089	07/12/1996	08:00 AM	Hurricane	N/A	0	0	0	0
2 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088>089	09/05/1996	05:00 PM	Hurricane	N/A	7	2	0	0
3 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088>089	09/04/1999	09:00 PM	Hurricane	N/A	0	0	0	3.0M
4 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088>089	09/15/1999	04:00 PM	Hurricane	N/A	0	0	3.0B	500.0M
TOTALS:					7	2	3.000B	503.000M

Historical evidence indicates that the potential extent of the hazard within Guilford County could be anywhere from a tropical storm to a Saffir/Simpson Category 3 hurricane.

Vulnerability Assessment/Hazard Risk Index

This hazard index is based on a scale from 1 to 12, with 12 representing the greatest hazard risk. The total index score is based on the ratings assigned to the following analysis factors:

<u>Score</u>	<u>Likelihood</u>	<u>Location</u>	<u>Impact</u>
1	Seldom	Isolated	Localized
2	Possible	Confined	Limited
3	Likely	Significant	Moderate
4	Highly Likely	Widespread	Extreme

Hazard Type	Likelihood of Occurrence	Location of Impact	Impact of Hazard	Hazard Index	Rank of Hazard
Winter Storm (Snow/Ice)	Likely (3)	Widespread (4)	Extreme (4)	11	1
Thunder/Wind Storm	Highly Likely (4)	Significant (3)	Moderate (3)	10	2
Inland Hurricane	Possible (2)	Widespread (4)	Moderate (3)	9	3
Tornado	Possible (2)	Significant (3)	Moderate (3)	8	4
Flash Flooding	Likely (3)	Confined (2)	Limited (2)	7	5
Extreme Temperature	Possible (2)	Significant (3)	Localized (1)	6	6
Lightning Strike	Likely (3)	Isolated (1)	Localized (1)	5	7
Damaging Hail	Seldom (1)	Confined (2)	Localized (1)	4	8
Wildfire	Seldom (1)	Widespread (4)	Limited (2)	3	9

Hurricane and Tropical Storm Links and References

Tropical Prediction Center/National Hurricane Center: <http://www.nhc.noaa.gov/>

Tornadoes



According to the Glossary of Meteorology (AMS 2000), a tornado is "a violently rotating column of air, pendant from a cumuliform cloud or underneath a cumuliform cloud, and often (but not always) visible as a funnel cloud." In order for a vortex to be classified as a tornado, it must be in contact with the ground *and* the cloud base. A tornado may not have a visible funnel. For more information about

tornadoes, Dr. Chuck Doswell of Cooperative Institute for Mesoscale Meteorological Studies offers an in-depth discussion on defining tornadoes which can be found at http://www.cimms.ou.edu/~doswell/a_tornado/atornado.html.

Tornadoes that form from a supercell thunderstorm are the most common, and often the most dangerous. A supercell is a long-lived and highly organized storm feeding from an updraft that is tilted and rotating. This rotating updraft - as large as 10 miles in diameter and up to 50,000 feet tall - can be present as much as 20 to 60 minutes before a tornado forms. Scientists call this rotation a mesocyclone when it is detected by Doppler radar. The tornado is a very small extension of this larger rotation. Most large and violent tornadoes come from supercells.

Non-supercell tornadoes are circulations that form without a rotating updraft. One non-supercell tornado is the gustnado, a whirl of dust or debris at or near the ground with no condensation funnel, which forms along the gust front of a storm. Another non-supercell tornado is a landspout. A landspout is a tornado with a narrow, rope-like condensation funnel that forms when the thunderstorm cloud is still growing and there is no rotating updraft - the spinning motion originates near the ground. Waterspouts are similar to landspouts, except they occur over water. Damage from these types of tornadoes tends to be F2 or less.

Tornado History in Guilford County:

In Guilford County, tornadoes occur on average one, or fewer, every two years. Although the frequency of tornadoes is low, the impact to both population and infrastructure is high. Historical evidence indicates that the potential extent of the tornado hazard within Guilford County could be anywhere from an EF-0 to and EF-5 storm based on the Enhanced Fujita Scale. This scale measures the magnitude of damages from the storm.

To see an animated graphic of probabilities of tornadoes in each month, please visit the NSSL Probability of tornadoes occurring in an average year website at <http://www.nssl.noaa.gov/hazard/tanim/torw8099.html>.

Recorded Tornado Events in Guilford County (1950 – 2009)

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 GUILFORD	06/16/1954	1230	Tornado	F2	0	1	3K	0
2 GUILFORD	04/05/1957	1935	Tornado	F1	0	1	250K	0
3 GUILFORD	09/29/1959	1200	Tornado	F1	0	0	25K	0
4 GUILFORD	06/12/1962	2130	Tornado	F1	0	0	3K	0
5 GUILFORD	04/17/1967	1415	Tornado	F1	0	0	25K	0
6 GUILFORD	05/14/1967	1630	Tornado	F1	0	0	250K	0
7 GUILFORD	10/08/1976	1500	Tornado	F1	0	0	25K	0

8 Greensboro Arpt	05/07/1998	06:20 PM	Tornado	F1	0	0	100K	0
9 Climax	05/07/1998	07:07 PM	Tornado	F1	0	0	0	0
10 Stokesdale	09/17/2004	10:09 AM	Tornado	F1	0	0	0	0
11 Oak Ridge	07/07/2005	04:20 PM	Tornado	F0	0	0	0	0
12 Deep River	05/08/2008	22:29 PM	Tornado	F2	1	3	4.0M	0K
TOTALS:					1	5	4.680M	0

Key: Mag-Magnitude, Dth-Deaths, Inj-Injuries, PrD-Property Damage, CrD-Crop Damage. Information obtained from www.ncdc.noaa.gov

Vulnerability Assessment/Hazard Risk Index

This hazard index is based on a scale from 1 to 12, with 12 representing the greatest hazard risk. The total index score is based on the ratings assigned to the following analysis factors:

Score	Likelihood	Location	Impact
1	Seldom	Isolated	Localized
2	Possible	Confined	Limited
3	Likely	Significant	Moderate
4	Highly Likely	Widespread	Extreme

Hazard Type	Likelihood of Occurrence	Location of Impact	Impact of Hazard	Hazard Index	Rank of Hazard
Winter Storm (Snow/Ice)	Likely (3)	Widespread (4)	Extreme (4)	11	1
Thunder/Wind Storm	Highly Likely (4)	Significant (3)	Moderate (3)	10	2
Inland Hurricane	Possible (2)	Widespread (4)	Moderate (3)	9	3
Tornado	Possible (2)	Significant (3)	Moderate (3)	8	4
Flash Flooding	Likely (3)	Confined (2)	Limited (2)	7	5
Extreme Temperature	Possible (2)	Significant (3)	Localized (1)	6	6
Lightning Strike	Likely (3)	Isolated (1)	Localized (1)	5	7
Damaging Hail	Seldom (1)	Confined (2)	Localized (1)	4	8
Wildfire	Seldom (1)	Widespread (4)	Limited (2)	3	9

Lightning



In a storm, ice particles vary in size from small ice crystals to larger hailstones, but in the rising and sinking motions within the storm there are a lot of collisions between the particles. These collisions cause a separation of electrical charges. Positively charged ice crystals rise to the top of the thunderstorm, and negatively charged ice particles and hailstones drop to the middle and lower parts of the storm. Enormous charge differences (electrical differential) develop.

A moving thunderstorm gathers another pool of positively charged particles along the ground that travel with the storm. As the differences in charges continue to increase, positively charged particles rise up taller objects such as trees, houses, and telephone poles.

The negatively charged area in the storm will send out a charge toward the ground called a stepped leader. It is invisible to the human eye, and moves in steps in less than a second toward the ground. When it gets close to the ground, all these positively charged objects attract it, and a channel develops. You see the electrical transfer in this channel as lightning. There may be several return strokes of electricity within the established channel that you will see as flickering lightning.

The lightning channel heats rapidly to 30,000 degrees. The rapid expansion of heated air causes the thunder. Since light travels more rapidly than sound in the atmosphere, the sound will be heard after the lightning. If you are ever in a storm when you see the lightning and hear the thunder at the same time, that lightning is very close to wherever you are.

In the United States, there are an estimated 25 million cloud-to-ground lightning flashes each year. While lightning can be fascinating to watch, it is also extremely dangerous. During the past 30 years, lightning killed an average of 73 people per year in the United States based on documented cases. This is more than the average of 68 deaths per year caused by tornadoes and the average of 16 deaths per year caused by hurricanes. However, because lightning usually claims only one or two victims at a time, and because lightning does not cause the mass destruction left in the wake of tornadoes or hurricanes, lightning generally receives much less attention than the more destructive weather-related killers. While documented lightning injuries in the United States average about 300 per year, undocumented injuries caused by lightning are likely much higher.

Recorded Lightning Events in Guilford County (1950 – 2009):

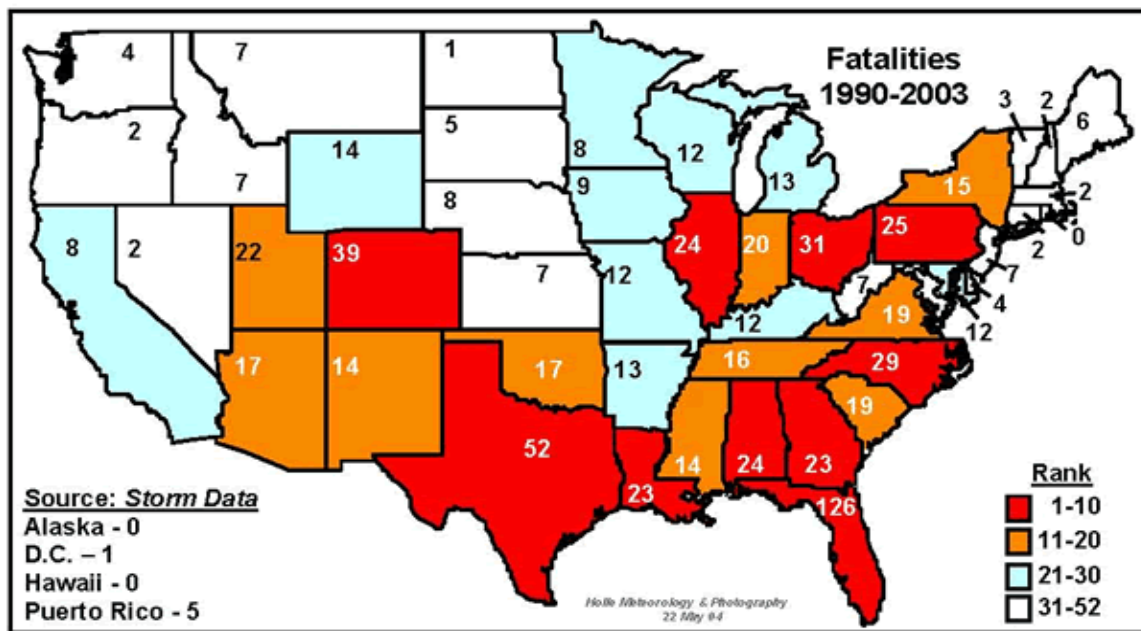
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 Greensboro	05/04/1993	1728	Lightning	N/A	0	0	5K	0
2 Greensboro	09/07/1993	1330	Lightning	N/A	1	0	0	0
3 Greensboro	07/17/1994	1900	Lightning	N/A	0	1	0	0
4 N Greensboro	07/16/1995	1400	Lightning	N/A	0	0	15K	0
5 Oak Ridge	07/28/1997	05:15 PM	Lightning	N/A	0	0	0	0
6 Greensboro	03/26/2002	05:10 PM	Lightning	N/A	0	0	220K	0

7 Sedgefield	05/01/2002	12:00 AM	Lightning	N/A	0	0	300K	0
8 Oak Ridge	06/26/2002	04:00 PM	Lightning	N/A	0	0	5K	0
9 High Pt	07/01/2002	07:45 PM	Lightning	N/A	0	0	7K	0
TOTALS:					1	1	552K	0

Key: Mag-Magnitude, Dth-Deaths, Inj-Injuries, PrD-Property Damage, CrD-Crop Damage. Information obtained from www.ncdc.noaa.gov

Lightning History in Guilford County:

North Carolina has historically ranked within the top 5 states in the Nation for lightning related injuries and deaths. On September 7, 1993 a woman in Greensboro was struck and killed by lightning as she was walking to her car in the parking lot of Carolina Circle Mall.



This Lightning Density graphic is available on the [NOAA Lightning Safety](http://www.noaa.gov/lightning-safety) page and is provided by [Global Atmospherics, Inc.](http://www.globalatmospherics.com), Tucson, Arizona. To enlarge the image, simply click on it.

Guilford County averages 50 to 60 “thunderstorm days” per year. Thunderstorm days are days in which thunderstorms and lightning occur. While the frequency of thunderstorms and lightning is high, the impact to both population and infrastructure is low. Additionally, there is a low occurrence of documented lightning events. The extent of potential damages from lightning strikes within the county would be localized and likely limited to a few injuries or fatalities.

For more information about lightning, visit the National Lightning Safety Institute (<http://www.lightningsafety.com>).

Vulnerability Assessment/Hazard Risk Index

This hazard index is based on a scale from 1 to 12, with 12 representing the greatest hazard risk. The total index score is based on the ratings assigned to the following analysis factors:

<u>Score</u>	<u>Likelihood</u>	<u>Location</u>	<u>Impact</u>
1	Seldom	Isolated	Localized
2	Possible	Confined	Limited
3	Likely	Significant	Moderate
4	Highly Likely	Widespread	Extreme

Hazard Type	Likelihood of Occurrence	Location of Impact	Impact of Hazard	Hazard Index	Rank of Hazard
Winter Storm (Snow/Ice)	Likely (3)	Widespread (4)	Extreme (4)	11	1
Thunder/Wind Storm	Highly Likely (4)	Significant (3)	Moderate (3)	10	2
Inland Hurricane	Possible (2)	Widespread (4)	Moderate (3)	9	3
Tornado	Possible (2)	Significant (3)	Moderate (3)	8	4
Flash Flooding	Likely (3)	Confined (2)	Limited (2)	7	5
Extreme Temperature	Possible (2)	Significant (3)	Localized (1)	6	6
Lightning Strike	Likely (3)	Isolated (1)	Localized (1)	5	7
Damaging Hail	Seldom (1)	Confined (2)	Localized (1)	4	8
Wildfire	Seldom (1)	Widespread (4)	Limited (2)	3	9

Lightning Links and References

NOAA Lightning Safety: <http://www.lightningsafety.noaa.gov>

National Lightning Safety Institute: <http://www.lightningsafety.com>

Hail



What is hail?

Hail stones are balls of ice that grow as they are held up by winds, known as updrafts, which blow upward in thunderstorms. The updrafts carry droplets of super-cooled water, which is water at a below freezing temperature that is not yet ice. The super-cooled water droplets hit the balls of ice and freeze instantly, making the hailstones grow. The faster the updraft, the bigger the stones can grow. Most hailstones are smaller in diameter than a dime, but stones weighing more than a pound have been recorded.

The specifics of how hailstones grow are complicated, but the results are irregular balls of ice that can be as large as softballs. The size of hail is often identified in terms of known objects of similar sizes. This can range from a pea to a golf ball, tennis ball, baseball and softball. Hail can cause damage to any surfaces on which it falls. The damage from small stones can be minor, while damages from larger stones can be devastating to crops and livestock as well as homes, businesses and vehicles.

Recorded Hail Events in Guilford County:

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 GUILFORD	08/07/1967	1415	Hail	0.75 in.	0	0	0	0
2 GUILFORD	06/22/1978	1500	Hail	1.00 in.	0	0	0	0
3 GUILFORD	08/21/1979	1600	Hail	1.00 in.	0	0	0	0
4 GUILFORD	04/27/1982	1740	Hail	1.00 in.	0	0	0	0
5 GUILFORD	05/29/1982	1825	Hail	1.75 in.	0	0	0	0
6 GUILFORD	04/02/1983	1913	Hail	2.75 in.	0	0	0	0
7 GUILFORD	04/14/1984	1610	Hail	1.75 in.	0	0	0	0
8 GUILFORD	05/06/1984	0600	Hail	1.75 in.	0	0	0	0
9 GUILFORD	05/15/1985	1625	Hail	0.75 in.	0	0	0	0
10 GUILFORD	05/22/1985	1700	Hail	2.50 in.	0	0	0	0
11 GUILFORD	06/03/1985	1445	Hail	1.00 in.	0	0	0	0
12 GUILFORD	06/05/1985	1555	Hail	1.25 in.	0	0	0	0
13 GUILFORD	06/05/1985	1727	Hail	1.00 in.	0	0	0	0
14 GUILFORD	04/12/1987	1600	Hail	1.75 in.	0	0	0	0
15 GUILFORD	06/01/1987	1800	Hail	1.75 in.	0	0	0	0
16 GUILFORD	05/16/1988	1328	Hail	0.75 in.	0	0	0	0
17 GUILFORD	05/17/1988	1240	Hail	0.75 in.	0	0	0	0
18 GUILFORD	05/17/1988	1340	Hail	0.75 in.	0	0	0	0
19 GUILFORD	05/17/1988	1403	Hail	0.75 in.	0	0	0	0
20 GUILFORD	05/17/1988	1430	Hail	1.00 in.	0	0	0	0
21 GUILFORD	06/21/1988	1535	Hail	0.75 in.	0	0	0	0
22 GUILFORD	07/10/1988	1730	Hail	1.75 in.	0	0	0	0
23 GUILFORD	04/27/1989	1538	Hail	0.75 in.	0	0	0	0
24 GUILFORD	06/02/1989	1515	Hail	1.00 in.	0	0	0	0

25	GUILFORD	05/01/1990	1630	Hail	1.00 in.	0	0	0	0
26	GUILFORD	05/01/1990	1645	Hail	1.00 in.	0	0	0	0
27	GUILFORD	05/27/1990	1550	Hail	1.00 in.	0	0	0	0
28	GUILFORD	05/27/1990	1610	Hail	1.75 in.	0	0	0	0
29	GUILFORD	07/01/1990	1358	Hail	1.75 in.	0	0	0	0
30	GUILFORD	04/30/1992	1645	Hail	0.75 in.	0	0	0	0
31	GUILFORD	06/26/1992	1500	Hail	0.75 in.	0	0	0	0
32	High Point	08/27/1994	1445	Hail	0.75 in.	0	0	0	0
33	Julian	10/27/1995	1610	Hail	1.50 in.	0	0	0	0
34	Julian	05/29/1996	06:25 PM	Hail	1.75 in.	0	0	0	0
35	High Point	07/18/1996	05:15 PM	Hail	0.75 in.	0	0	0	0
36	Greensboro	09/13/1996	03:12 AM	Hail	0.75 in.	0	0	0	0
37	Julian,climax	10/18/1996	05:20 PM	Hail	0.75 in.	0	0	0	0
38	Greensboro	03/05/1997	06:20 PM	Hail	0.75 in.	0	0	0	0
39	Stokesdale	07/24/1997	03:51 PM	Hail	1.00 in.	0	0	0	0
40	Greensboro	08/25/1997	04:45 PM	Hail	0.75 in.	0	0	0	0
41	Gibsonville	04/03/1998	11:02 PM	Hail	0.75 in.	0	0	0	0
42	High Pt	04/17/1998	05:50 PM	Hail	0.88 in.	0	0	0	0
43	Monticello	05/01/1998	05:48 PM	Hail	0.75 in.	0	0	0	0
44	High Pt	05/07/1998	06:30 PM	Hail	0.88 in.	0	0	0	0
45	Greensboro	05/20/1998	02:55 PM	Hail	1.75 in.	0	0	0	0
46	Guilford	05/20/1998	03:15 PM	Hail	1.00 in.	0	0	0	0
47	Greensboro	05/26/1998	02:15 AM	Hail	0.75 in.	0	0	0	0
48	Greensboro	06/15/1998	12:25 AM	Hail	0.75 in.	0	0	0	0
49	High Pt	06/03/2000	04:25 PM	Hail	1.75 in.	0	0	0	0
50	Summerfield	08/18/2000	03:02 PM	Hail	2.50 in.	0	0	0	0
51	Oak Ridge	05/12/2001	05:15 PM	Hail	0.88 in.	0	0	0	0
52	Greensboro	05/25/2001	10:45 PM	Hail	1.00 in.	0	0	0	0
53	Greensboro	05/25/2001	11:06 PM	Hail	1.00 in.	0	0	0	0
54	Pleasant Garden	07/01/2002	02:44 PM	Hail	1.50 in.	0	0	0	0

55 High Pt	07/02/2002	04:33 PM	Hail	0.88 in.	0	0	0	0
56 Stokesdale	07/03/2002	04:20 PM	Hail	1.75 in.	0	0	0	0
57 Greensboro	07/04/2002	02:40 PM	Hail	0.88 in.	0	0	0	0
58 Greensboro	07/04/2002	03:05 PM	Hail	0.75 in.	0	0	0	0
59 Jamestown	04/26/2003	03:58 PM	Hail	0.88 in.	0	0	0	0
60 Greensboro	04/26/2003	04:05 PM	Hail	1.25 in.	0	0	0	0
61 High Pt	04/30/2003	03:34 PM	Hail	0.75 in.	0	0	0	0
62 High Pt	05/02/2003	05:50 PM	Hail	0.75 in.	0	0	0	0
63 Greensboro	05/31/2003	04:10 PM	Hail	1.00 in.	0	0	0	0
64 Summerfield	07/13/2003	05:56 PM	Hail	0.88 in.	0	0	0	0
65 Stokesdale	07/19/2003	02:35 PM	Hail	0.88 in.	0	0	0	0
66 Greensboro	08/05/2003	06:05 PM	Hail	0.75 in.	0	0	0	0
67 Greensboro	08/22/2003	04:31 PM	Hail	0.88 in.	0	0	0	0
68 Greensboro	05/09/2004	05:25 PM	Hail	0.75 in.	0	0	0	0
69 Gibsonville	05/23/2004	03:40 PM	Hail	0.88 in.	0	0	0	0
70 High Pt	07/04/2004	05:45 PM	Hail	0.75 in.	0	0	0	0
71 High Pt	07/17/2004	06:37 PM	Hail	1.00 in.	0	0	0	0
72 Oak Ridge	03/23/2005	05:45 PM	Hail	1.00 in.	0	0	0	0
73 Greensboro	03/23/2005	05:59 PM	Hail	1.75 in.	0	0	0	0
74 Sedalia	09/20/2005	06:10 PM	Hail	0.75 in.	0	0	0	0
75 Summerfield	10/21/2005	11:10 PM	Hail	0.75 in.	0	0	0	0
76 Greensboro	04/03/2006	05:30 PM	Hail	0.75 in.	0	0	0	0
77 High Pt	05/14/2006	01:27 PM	Hail	1.00 in.	0	0	0	0
78 Greensboro	05/14/2006	03:15 PM	Hail	1.75 in.	0	0	0	0
79 Greensboro	05/14/2006	03:17 PM	Hail	1.75 in.	0	0	0	0
80 Greensboro	05/14/2006	12:00 PM	Hail	0.88 in.	0	0	0	0
81 Greensboro	05/14/2006	12:00 PM	Hail	0.88 in.	0	0	0	0
82 Gibsonville	05/14/2006	12:10 PM	Hail	0.88 in.	0	0	0	0
83 Greensboro	05/14/2006	12:10 PM	Hail	0.88 in.	0	0	0	0
84 Greensboro	05/14/2006	12:21 PM	Hail	1.00 in.	0	0	0	0

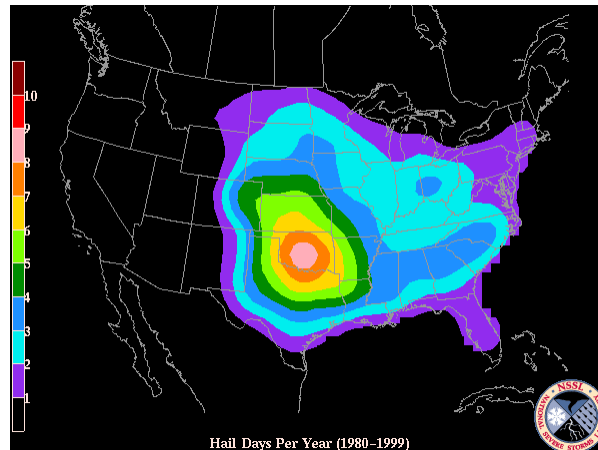
85	Gibsonville	05/14/2006	12:45 PM	Hail	0.88 in.	0	0	0	0
86	Greensboro	05/14/2006	12:55 PM	Hail	0.88 in.	0	0	0	0
87	Greensboro	05/14/2006	12:55 PM	Hail	1.00 in.	0	0	0	0
88	Greensboro	05/15/2006	08:10 PM	Hail	0.75 in.	0	0	0	0
89	Greensboro	05/26/2006	05:52 PM	Hail	1.00 in.	0	0	0	0
90	High Pt	06/08/2006	02:46 PM	Hail	0.75 in.	0	0	0	0
91	Greensboro	06/11/2006	03:43 AM	Hail	0.75 in.	0	0	0	0
92	Stokesdale	06/11/2006	04:56 PM	Hail	0.75 in.	0	0	0	0
93	Stokesdale	06/11/2006	05:09 PM	Hail	0.75 in.	0	0	0	0
94	Greensboro	06/11/2006	05:30 PM	Hail	1.50 in.	0	0	0	0
95	Greensboro	06/11/2006	05:34 PM	Hail	0.75 in.	0	0	0	0
96	Mc Leansville	06/23/2006	04:35 PM	Hail	1.75 in.	0	0	0	0
97	Greensboro	06/23/2006	04:55 PM	Hail	0.88 in.	0	0	0	0
98	High Pt	06/23/2006	05:00 PM	Hail	0.88 in.	0	0	0	0
99	Greensboro	06/23/2006	05:14 PM	Hail	1.00 in.	0	0	0	0
100	Greensboro	06/23/2006	05:15 PM	Hail	1.00 in.	0	0	0	0
101	Greensboro	06/23/2006	05:30 PM	Hail	0.75 in.	0	0	0	0
102	Stokesdale	07/04/2006	08:05 PM	Hail	1.00 in.	0	0	0	0
103	Pleasant Garden	08/07/2006	05:00 PM	Hail	0.75 in.	0	0	0	0
104	High Pt	08/30/2006	02:39 PM	Hail	1.00 in.	0	0	0	0
105	Greensboro	08/30/2006	03:00 PM	Hail	0.75 in.	0	0	0	0
106	High Pt	08/30/2006	03:00 PM	Hail	0.75 in.	0	0	0	0
107	Greensboro	09/28/2006	04:19 PM	Hail	0.88 in.	0	0	0	0
108	Stokesdale	09/28/2006	04:22 PM	Hail	0.75 in.	0	0	0	0
109	Summerfield	09/28/2006	04:30 PM	Hail	0.75 in.	0	0	0	0
110	Greensboro	04/15/2007	16:14 PM	Hail	0.88 in.	0	0	OK	OK
111	Greensboro	06/27/2007	18:08 PM	Hail	0.75 in.	0	0	OK	OK
112	Greensboro	06/27/2007	18:12 PM	Hail	0.75 in.	0	0	OK	OK
113	Climax	03/04/2008	16:12 PM	Hail	0.75 in.	0	0	OK	OK
114	Greensboro May Arpt	03/04/2008	16:20 PM	Hail	0.75 in.	0	0	OK	OK

115	Colfax	03/04/2008	21:06 PM	Hail	0.75 in.	0	0	OK	OK
116	High Pt	04/20/2008	14:00 PM	Hail	1.00 in.	0	0	OK	OK
117	Browns Summit	05/08/2008	22:30 PM	Hail	0.75 in.	0	0	OK	OK
118	Battle Ground	05/08/2008	23:35 PM	Hail	1.75 in.	0	0	OK	OK
119	Browns Summit	05/09/2008	22:25 PM	Hail	0.75 in.	0	0	OK	OK
120	Sherwood Vlg	05/20/2008	14:37 PM	Hail	0.88 in.	0	0	OK	OK
121	Battle Ground	05/31/2008	16:56 PM	Hail	0.75 in.	0	0	OK	OK
122	Summerfield	05/31/2008	16:58 PM	Hail	0.75 in.	0	0	OK	OK
123	Battle Ground	05/31/2008	17:05 PM	Hail	0.88 in.	0	0	OK	OK
124	Guilford	05/31/2008	17:12 PM	Hail	1.00 in.	0	0	OK	OK
125	Battle Ground	05/31/2008	17:17 PM	Hail	0.88 in.	0	0	OK	OK
126	Pinecroft	05/31/2008	17:26 PM	Hail	1.00 in.	0	0	OK	OK
127	Battle Ground	05/31/2008	17:32 PM	Hail	1.25 in.	0	0	OK	OK
128	Battle Ground	05/31/2008	17:40 PM	Hail	1.00 in.	0	0	OK	OK
129	Greensboro	05/31/2008	18:01 PM	Hail	1.00 in.	0	0	OK	OK
130	Guilford	06/22/2008	17:30 PM	Hail	0.75 in.	0	0	OK	OK
131	Battle Ground	06/22/2008	17:43 PM	Hail	0.75 in.	0	0	OK	OK
132	Hamilton Lakes	06/22/2008	17:47 PM	Hail	0.88 in.	0	0	OK	OK
133	Hamilton Lakes	06/22/2008	18:06 PM	Hail	0.88 in.	0	0	OK	OK
134	Whitsett	06/22/2008	19:31 PM	Hail	0.75 in.	0	0	OK	OK
135	Pleasant Garden	05/09/2009	16:15 PM	Hail	0.88 in.	0	0	OK	OK
136	Battle Ground	06/03/2009	15:28 PM	Hail	1.00 in.	0	0	OK	OK
137	Broadview	06/03/2009	15:51 PM	Hail	0.75 in.	0	0	OK	OK
138	Bessemer	06/03/2009	16:01 PM	Hail	1.00 in.	0	0	OK	OK
139	Climax	06/09/2009	17:30 PM	Hail	1.00 in.	0	0	OK	OK
140	Oak Ridge Arpt	07/20/2009	16:05 PM	Hail	1.75 in.	0	0	OK	OK
141	Hillsdale	07/20/2009	16:25 PM	Hail	0.75 in.	0	0	OK	OK
142	Greensboro	08/19/2009	18:20 PM	Hail	0.75 in.	0	0	OK	OK

Key: Mag-Magnitude, Dth-Deaths, Inj-Injuries, PrD-Property Damage, CrD-Crop Damage
Information obtained from [National Climate Data Center – Storm Events](http://www.ncdc.noaa.gov) (www.ncdc.noaa.gov)

Hail History in Guilford County:

As the hail history chart indicates, hail is a fairly common occurrence in Guilford County. Pea sized hail is common in summer time thunderstorms across central North Carolina. When hail becomes dime size (.75”) or larger, the thunderstorm which produced the hail is then classified as a severe thunderstorm. There have not been any reported hail deaths in Guilford County, and damage from hail has generally been localized and infrequently reported to authorities. While there are frequent occurrences of hail, there is very infrequently damages reported as a result, so damaging hail is an infrequent occurrence in the County. The extent of the hail would likely be between .75 inches and 4 inches and may do damage to property.



This most recent graphic from the National Severe Storms Laboratory represents the number of severe thunderstorms with damaging wind days per year for the period of 1980 through 1999. In Guilford County, severe thunderstorms with damaging hail occurs an average of three times every year. The frequency of severe thunderstorms with damaging wind is low. Also the impact to both population and infrastructure is moderate when hail size exceeds two inches.

To see an *animated graphic* of probabilities of severe thunderstorms with damaging hail in each month, please visit: <http://www.nssl.noaa.gov/hazard/tanim/haiw8099.html>.

Vulnerability Assessment/Hazard Risk Index

This hazard index is based on a scale from 1 to 12, with 12 representing the greatest hazard risk. The total index score is based on the ratings assigned to the following analysis factors:

<u>Score</u>	<u>Likelihood</u>	<u>Location</u>	<u>Impact</u>
1	Seldom	Isolated	Localized
2	Possible	Confined	Limited
3	Likely	Significant	Moderate
4	Highly Likely	Widespread	Extreme

<u>Hazard Type</u>	<u>Likelihood of Occurrence</u>	<u>Location of Impact</u>	<u>Impact of Hazard</u>	<u>Hazard Index</u>	<u>Rank of Hazard</u>
Winter Storm (Snow/Ice)	Likely (3)	Widespread (4)	Extreme (4)	11	1
Thunder/Wind Storm	Highly Likely (4)	Significant (3)	Moderate (3)	10	2

Inland Hurricane	Possible (2)	Widespread (4)	Moderate (3)	9	3
Tornado	Possible (2)	Significant (3)	Moderate (3)	8	4
Flash Flooding	Likely (3)	Confined (2)	Limited (2)	7	5
Extreme Temperature	Possible (2)	Significant (3)	Localized (1)	6	6
Lightning Strike	Likely (3)	Isolated (1)	Localized (1)	5	7
Damaging Hail	Seldom (1)	Confined (2)	Localized (1)	4	8
Wildfire	Seldom (1)	Widespread (4)	Limited (2)	3	9

Flash Flooding



Floods are caused by weather phenomena and events that deliver more precipitation to a drainage basin than can be readily absorbed or stored within the basin. A flash flood is caused by heavy or excessive rainfall in a short period of time, and occurring generally less than 6 hours after the causative event.

Flooding and Flash Flooding claim more lives across the country than any other severe weather event. Flash flooding in particular can occur with little or no warning and be very difficult to forecast.

Recorded Flash Flood Events in Guilford County:

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 NCZ001>510	03/23/1993	1200	Flash Floods	N/A	0	0	0	0
2 Greensboro	08/18/1994	1630	Flash Flood	N/A	0	0	0	0
3 Greensboro, High Pt	07/25/1996	12:16 PM	Flash Flood	N/A	0	0	0	0
4 High Point	09/03/1996	07:00 PM	Flash Flood	N/A	0	0	20K	0
5 Se Ptn	04/28/1997	09:20 PM	Flash Flood	N/A	0	0	0	0
6 High Pt	04/17/1998	05:25 PM	Urban/sml Stream Fld	N/A	0	0	0	0

7 Greensboro	06/19/2000	02:00 PM	Flash Flood	N/A	0	0	0	0
8 Greensboro	08/27/2000	06:00 PM	Flash Flood	N/A	0	0	0	0
9 Greensboro	08/28/2000	03:00 AM	Flash Flood	N/A	0	0	0	0
10 Greensboro	09/01/2000	06:58 PM	Flash Flood	N/A	0	0	0	0
11 Oak Ridge	09/14/2000	11:10 PM	Flash Flood	N/A	0	0	0	0
12 Greensboro	07/04/2001	06:26 PM	Flash Flood	N/A	0	0	0	0
13 High Pt	09/18/2002	01:55 PM	Flash Flood	N/A	0	0	0	0
14 West Portion	02/22/2003	12:00 PM	Flash Flood	N/A	0	0	0	0
15 NCZ007>009 - 021>026 - 038>041 - 073>075 - 077 - 083>084 - 086 - 088	03/20/2003	06:30 AM	Flood	N/A	0	0	150K	0
16 NCZ021>023 - 025 - 038>041 - 073>076 - 083	04/10/2003	12:15 PM	Flood	N/A	0	0	0	0
17 Summerfield	07/13/2003	06:58 PM	Flash Flood	N/A	0	0	0	0
18 Climax	08/04/2003	07:45 PM	Flash Flood	N/A	0	0	0	0
19 Greensboro	08/17/2003	07:30 PM	Flash Flood	N/A	0	0	12K	0
20 Greensboro	08/31/2003	02:30 PM	Flash Flood	N/A	0	0	0	0
21 Greensboro	09/23/2003	02:00 AM	Flash Flood	N/A	0	0	0	0
22 Greensboro	07/17/2004	09:15 PM	Flash Flood	N/A	0	0	0	0
23 Greensboro	09/08/2004	09:30 AM	Flash Flood	N/A	0	0	0	0
24 Greensboro	09/27/2004	11:10 PM	Flash Flood	N/A	0	0	0	0

25 Greensboro	12/10/2004	03:30 AM	Flash Flood	N/A	0	0	0	0
26 Greensboro	06/14/2006	10:45 AM	Flash Flood	N/A	0	0	0	0
27 Guilford	06/23/2006	06:00 PM	Flash Flood	N/A	0	0	0	0
28 High Pt	06/23/2006	06:04 PM	Flash Flood	N/A	0	0	0	0
29 High Pt	06/23/2006	06:09 PM	Flash Flood	N/A	0	0	0	0
30 High Pt	06/27/2006	03:00 PM	Flash Flood	N/A	0	0	0	0
31 Greensboro	08/30/2006	03:45 PM	Flash Flood	N/A	0	0	0	0
32 High Pt	08/30/2006	05:06 PM	Flash Flood	N/A	0	0	0	0
33 Greensboro	04/15/2007	20:02 PM	Flash Flood	N/A	0	0	0K	0K
34 Greensboro	06/27/2007	18:35 PM	Flash Flood	N/A	0	0	0K	0K
35 Greensboro	06/27/2007	18:45 PM	Flash Flood	N/A	0	0	0K	0K
36 Greensboro	06/27/2007	18:50 PM	Flash Flood	N/A	0	0	0K	0K
37 Summerfield	07/30/2007	03:30 AM	Flash Flood	N/A	0	0	0K	0K
38 Summerfield	07/30/2007	03:30 AM	Flash Flood	N/A	0	0	0K	0K
39 Summerfield	07/30/2007	03:35 AM	Flash Flood	N/A	0	0	0K	0K
40 Terra Cotta	06/22/2008	18:30 PM	Flash Flood	N/A	0	0	0K	0K
41 (gso)greensboro Rgnl	08/27/2008	08:00 AM	Flash Flood	N/A	0	0	30K	0K
42 Greensboro May Arpt	08/27/2008	13:00 PM	Flash Flood	N/A	0	0	150K	0K

43 Greensboro	06/03/2009	16:52 PM	Flash Flood	N/A	1	0	2.0M	OK
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Key: Mag-Magnitude, Dth-Deaths, Inj-Injuries, PrD-Property Damage, CrD-Crop Damage
Information obtained from [National Climate Data Center – Storm Events](http://www.ncdc.noaa.gov) (www.ncdc.noaa.gov)

Flash Flood History in Guilford County:

In the past few years, urban stream flooding and flash flooding have becoming a significant problem within Guilford County. In the year 2000, two flooding events occurred that caused extensive damage and minor injuries. On June 19, 2000, a slow moving thunderstorm dumped several inches of rain in eastern sections of Greensboro. Several homes were flooded near the intersection of Wendover Avenue and Highway 29. Many homes were badly damaged by the floodwaters. And again on September 1, 2000, heavy rains caused flash flooding. This time, homes and apartments were flooded in western Greensboro. Several residents had to be rescued and an emergency shelter was opened for those residents who could not return to their homes.

Since that time, the County has experienced several severe flooding events in the summers of 2006, 2007 and 2008. Those flooding events helped to increase the awareness of County officials and residents of the dangers of flooding and the need to take mitigation measures now to prevent damages in the future. The potential extent of impact from flooding can be up to several feet throughout the areas of the county that are prone to flooding.

It should be noted that Guilford County and all of its municipalities are participants in the National Flood Insurance Program. The jurisdictions plan to maintain this status and continue to work toward reducing and eliminating losses from flooding within the county.

Vulnerability Assessment/Hazard Risk Index

This hazard index is based on a scale from 1 to 12, with 12 representing the greatest hazard risk. The total index score is based on the ratings assigned to the following analysis factors:

<u>Score</u>	<u>Likelihood</u>	<u>Location</u>	<u>Impact</u>
1	Seldom	Isolated	Localized
2	Possible	Confined	Limited
3	Likely	Significant	Moderate
4	Highly Likely	Widespread	Extreme

Hazard Type	Likelihood of Occurrence	Location of Impact	Impact of Hazard	Hazard Index	Rank of Hazard
Winter Storm (Snow/Ice)	Likely (3)	Widespread (4)	Extreme (4)	11	1
Thunder/Wind Storm	Highly Likely (4)	Significant (3)	Moderate (3)	10	2
Inland Hurricane	Possible (2)	Widespread (4)	Moderate (3)	9	3
Tornado	Possible (2)	Significant (3)	Moderate (3)	8	4
Flash Flooding	Likely (3)	Confined (2)	Limited (2)	7	5
Extreme Temperature	Possible (2)	Significant (3)	Localized (1)	6	6
Lightning Strike	Likely (3)	Isolated (1)	Localized (1)	5	7
Damaging Hail	Seldom (1)	Confined (2)	Localized (1)	4	8

Winter Snow & Ice Storms



Winter storms can cause devastating, widespread damage and outages. These storms can be accompanied by strong winds, creating blizzard conditions with blinding wind-driven snow, severe drifting, and dangerous wind chill. Strong winds with these intense storms and cold fronts can knock down trees, utility poles, and power lines.

Heavy accumulations of ice can bring down trees, electrical wires, telephone poles and lines, and communication towers. Communications and power can be disrupted for days while utility companies work to repair the extensive damage. Even small accumulations of ice may cause extreme hazards to motorists and pedestrians.

Heavy snow can immobilize a region and paralyze cities, stranding commuters, stopping the flow of supplies, and disrupting emergency and medical services. Accumulations of snow can collapse buildings and knock down trees and power lines. In rural areas, homes and farms may be isolated for days, and unprotected livestock may be lost. In the mountains, heavy snow can lead to avalanches. The cost of snow removal, repairing damages, and loss of business can have large economic impacts on cities and towns.

Winter Storm History in Guilford County:

Guilford County averages between 8-10 inches of snow per year. Some years may produce less than an inch while others may bring record amounts. The Storm of the Century occurred in March 1993, bringing a barrage of snow and ice to Guilford County. This was the most costly year for winter storm related expenses within the county. Ice storms wreaked havoc in 1996 and a surprise snowstorm in 2000 left over a foot of snow in its wake. Eight to ten inches of snow blanketed the area again in 2002. Storms in December of 2007 were again costly and caused many issues for service delivery within the county. Historical evidence would suggest that the extent of potential damage from winter storms throughout the county would include temperatures below freezing for several weeks, with several feet of snow and inches of ice.

Recorded Winter Storm Events in Guilford County:

Location or County	Date	Time	Type	Mag	Dt h	In j	PrD	CrD
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1 Statewide	03/12/1993	1600	Winter Storm	N/A	2	10	50.0M	0
2 Northern And Central	01/03/1994	1800	Heavy Snow	N/A	0	0	0	0
3 Northern Interior And	02/10/1994	1000	Ice Storm	N/A	0	0	0	0
4 NCZ022	01/06/1996	12:00 PM	Heavy Snow	N/A	0	0	0	0
5 NCZ022	01/11/1996	10:00 PM	Ice Storm	N/A	0	0	0	0
6 NCZ022	02/02/1996	02:00 AM	Ice Storm	N/A	0	0	0	0
7 NCZ022	02/16/1996	06:00 AM	Heavy Snow	N/A	0	0	0	0
8 NCZ021>022 - 038	01/08/1997	01:00 PM	Winter Storm	N/A	0	0	0	0
9 NCZ021>022 - 038>039	02/13/1997	02:00 PM	Winter Storm	N/A	0	0	0	0
10 NCZ007 - 021>023 - 038>039 - 073	12/29/1997	08:00 AM	Winter Storm	N/A	0	0	0	0
11 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088>089	12/23/1998	02:00 PM	Ice Storm	N/A	0	0	0	0
12 NCZ007 - 021>023 - 038>039	01/02/1999	04:00 PM	Ice Storm	N/A	0	0	0	0
13 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088>089	01/18/2000	02:00 AM	Winter Storm	N/A	0	0	0	0
14 NCZ007>011 - 021>024 - 026>028 - 038>043 - 076>077 - 089	01/20/2000	12:00 AM	Winter Storm	N/A	0	0	0	0
15 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088>089	01/22/2000	06:00 PM	Winter Storm	N/A	0	0	0	0
16 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088>089	01/24/2000	05:00 AM	Winter Storm	N/A	0	0	0	0

17 NCZ007>011 - 021>028 - 038>043 - 073>077 - 083>086 - 088>089	01/28/2000	10:00 AM	Winter Storm	N/A	0	0	0	0
18 NCZ007>011 - 021>028 - 038>043 - 073>077 - 083	11/19/2000	11:00 AM	Heavy Snow	N/A	0	0	0	0
19 NCZ021>022 - 038	02/12/2001	04:30 AM	Winter Storm	N/A	0	0	0	0
20 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088>089	01/03/2002	12:00 AM	Winter Storm	N/A	0	0	0	0
21 NCZ007 - 021>024	01/06/2002	10:00 AM	Winter Storm	N/A	0	0	0	0
22 NCZ007>011 - 021>028 - 038>043 - 073>077 - 083>084	12/04/2002	03:00 PM	Winter Storm	N/A	0	0	0	0
23 NCZ007>011 - 021>027 - 038>043 - 073>077 - 083>084 - 086	02/16/2003	12:00 PM	Winter Storm	N/A	0	0	0	0
24 NCZ007>009 - 021>025 - 038>041	02/27/2003	12:00 AM	Winter Storm	N/A	0	0	0	0
25 NCZ007 - 021>023 - 038>039	12/13/2003	10:00 PM	Winter Weather/mix	N/A	0	0	0	0
26 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088>089	01/26/2004	04:30 AM	Winter Storm	N/A	0	0	0	0
27 NCZ007>011 - 021>027 - 038>039 - 041	02/15/2004	11:00 PM	Winter Storm	N/A	0	0	0	0
28 NCZ007 - 021>028 - 038>039 - 041>043 - 073>078 - 083>086 - 088>089	02/26/2004	09:00 AM	Winter Storm	N/A	0	0	0	0
29 NCZ008 - 021>025 - 038>040 - 073>074	01/29/2005	04:00 PM	Winter Storm	N/A	0	0	0	0
30 NCZ021>022 - 038	12/15/2005	06:00 AM	Winter	N/A	0	0	0	0

			Storm					
31 NCZ007>010 - 021>026 - 038>042 - 073	01/18/2007	05:00 AM	Winter Weather	N/A	0	0	0K	0K
32 NCZ008>010 - 021>022 - 024>025 - 038	01/21/2007	15:00 PM	Winter Weather	N/A	0	0	0K	0K
33 NCZ007>011 - 021>026 - 038	12/07/2007	04:00 AM	Winter Weather	N/A	0	0	20K	0K
34 NCZ007 - 021>025 - 038>042 - 073>077 - 083>086 - 088	01/17/2008	02:00 AM	Winter Weather	N/A	0	0	0K	0K
35 NCZ009 - 021>023 - 025 - 038	02/13/2008	18:00 PM	Winter Weather	N/A	0	0	0K	0K
36 NCZ021 - 022	02/03/2009	22:00 PM	Winter Weather	N/A	0	0	0K	0K

Key: Mag-Magnitude, Dth-Deaths, Inj-Injuries, PrD-Property Damage, CrD-Crop Damage
Information obtained from [National Climate Data Center – Storm Events](http://www.ncdc.noaa.gov) (www.ncdc.noaa.gov)

Vulnerability Assessment/Hazard Risk Index

This hazard index is based on a scale from 1 to 12, with 12 representing the greatest hazard risk. The total index score is based on the ratings assigned to the following analysis factors:

Score	Likelihood	Location	Impact
1	Seldom	Isolated	Localized
2	Possible	Confined	Limited
3	Likely	Significant	Moderate
4	Highly Likely	Widespread	Extreme

Hazard Type	Likelihood of Occurrence	Location of Impact	Impact of Hazard	Hazard Index	Rank of Hazard
Winter Storm (Snow/Ice)	Likely (3)	Widespread (4)	Extreme (4)	11	1
Thunder/Wind Storm	Highly Likely (4)	Significant (3)	Moderate (3)	10	2
Inland Hurricane	Possible (2)	Widespread (4)	Moderate (3)	9	3
Tornado	Possible (2)	Significant (3)	Moderate (3)	8	4
Flash Flooding	Likely (3)	Confined (2)	Limited (2)	7	5
Extreme Temperature	Possible (2)	Significant (3)	Localized (1)	6	6
Lightning Strike	Likely (3)	Isolated (1)	Localized (1)	5	7
Damaging Hail	Seldom (1)	Confined (2)	Localized (1)	4	8
Wildfire	Seldom (1)	Widespread (4)	Limited (2)	3	9

Winter Storm Links and References

NWS Winter Weather Awareness: <http://www.nws.noaa.gov/om/winter/index.shtml>

Severe Thunderstorms



The term “severe thunderstorm” refers to a thunderstorm producing hail that is .75 inches in diameter or larger, and/or wind gusts to 58 mph or greater, and/or a tornado. Although lightning can be deadly, the presence of lightning is not a necessary for what the National Weather Service defines as severe thunderstorm as any thunderstorm can produce a lot of lightning. Also, excessive rainfall may lead to flash flooding, but heavy rain is not a criterion for a severe thunderstorm. ([Storm Prediction Center – FAQ](#))

Most of the severe thunderstorms reported in Guilford County have been those with damaging straight-line winds and microburst winds. Thunderstorms are additionally threatening because of the additional elements that often accompany them including lightning, hail, and flash flooding. For additional information about thunderstorms, please consult the links provided at the beginning of this section

Recorded Severe Thunderstorm Events in Guilford County (1950 – 2009):

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 GUILFORD	08/02/1956	1500	Tstm Wind	0 kts.	0	0	0	0
2 GUILFORD	07/17/1957	1400	Tstm Wind	0 kts.	0	0	0	0
3 GUILFORD	05/25/1960	0005	Tstm Wind	60 kts.	0	0	0	0
4 GUILFORD	08/09/1962	0400	Tstm Wind	0 kts.	0	0	0	0
5 GUILFORD	03/19/1963	2127	Tstm Wind	50 kts.	0	0	0	0
6 GUILFORD	07/03/1964	1700	Tstm Wind	0 kts.	0	0	0	0
7 GUILFORD	07/13/1964	1400	Tstm Wind	0 kts.	0	0	0	0

8 GUILFORD	04/27/1965	1359	Tstm Wind	0 kts.	0	0	0	0
9 GUILFORD	07/04/1965	1700	Tstm Wind	55 kts.	0	0	0	0
10 GUILFORD	05/01/1966	1700	Tstm Wind	0 kts.	0	0	0	0
11 GUILFORD	05/29/1967	1435	Tstm Wind	0 kts.	0	0	0	0
12 GUILFORD	08/04/1967	1654	Tstm Wind	0 kts.	0	0	0	0
13 GUILFORD	06/24/1969	1400	Tstm Wind	0 kts.	0	0	0	0
14 GUILFORD	07/04/1970	1555	Tstm Wind	0 kts.	0	0	0	0
15 GUILFORD	06/29/1971	1630	Tstm Wind	0 kts.	0	0	0	0
16 GUILFORD	03/24/1975	1206	Tstm Wind	0 kts.	0	0	0	0
17 GUILFORD	02/18/1976	1540	Tstm Wind	54 kts.	0	0	0	0
18 GUILFORD	07/15/1976	1730	Tstm Wind	84 kts.	0	0	0	0
19 GUILFORD	08/14/1976	1239	Tstm Wind	60 kts.	0	0	0	0
20 GUILFORD	08/14/1976	1700	Tstm Wind	0 kts.	0	0	0	0
21 GUILFORD	07/04/1979	1800	Tstm Wind	0 kts.	0	0	0	0
22 GUILFORD	08/21/1979	1600	Tstm Wind	0 kts.	0	0	0	0
23 GUILFORD	08/01/1980	1500	Tstm Wind	50 kts.	0	0	0	0
24 GUILFORD	08/15/1980	1515	Tstm Wind	0 kts.	0	0	0	0
25 GUILFORD	06/06/1981	1900	Tstm Wind	0 kts.	0	0	0	0

26 GUILFORD	07/28/1981	1530	Tstm Wind	0 kts.	0	0	0	0
27 GUILFORD	05/29/1982	1825	Tstm Wind	52 kts.	0	0	0	0
28 GUILFORD	03/06/1983	1900	Tstm Wind	0 kts.	0	0	0	0
29 GUILFORD	07/10/1984	1624	Tstm Wind	50 kts.	0	0	0	0
30 GUILFORD	07/26/1984	1515	Tstm Wind	0 kts.	0	0	0	0
31 GUILFORD	07/26/1984	1535	Tstm Wind	0 kts.	0	0	0	0
32 GUILFORD	06/03/1985	1435	Tstm Wind	0 kts.	0	0	0	0
33 GUILFORD	06/05/1985	1600	Tstm Wind	0 kts.	0	0	0	0
34 GUILFORD	06/05/1985	1625	Tstm Wind	0 kts.	0	0	0	0
35 GUILFORD	07/04/1985	1630	Tstm Wind	0 kts.	0	0	0	0
36 GUILFORD	07/04/1985	1722	Tstm Wind	0 kts.	0	0	0	0
37 GUILFORD	07/10/1985	1920	Tstm Wind	55 kts.	0	0	0	0
38 GUILFORD	10/15/1985	1409	Tstm Wind	52 kts.	0	0	0	0
39 GUILFORD	10/15/1985	1425	Tstm Wind	0 kts.	0	0	0	0
40 GUILFORD	06/28/1986	1926	Tstm Wind	52 kts.	0	0	0	0
41 GUILFORD	07/29/1986	1500	Tstm Wind	0 kts.	0	0	0	0
42 GUILFORD	07/29/1986	1530	Tstm Wind	0 kts.	0	0	0	0
43 GUILFORD	04/15/1987	1730	Tstm Wind	0 kts.	0	0	0	0

44 GUILFORD	06/01/1987	1735	Tstm Wind	0 kts.	0	0	0	0
45 GUILFORD	09/10/1987	1740	Tstm Wind	0 kts.	0	0	0	0
46 GUILFORD	05/10/1988	1600	Tstm Wind	0 kts.	0	0	0	0
47 GUILFORD	05/17/1988	1509	Tstm Wind	0 kts.	0	0	0	0
48 GUILFORD	05/23/1988	1858	Tstm Wind	50 kts.	0	0	0	0
49 GUILFORD	06/26/1988	1620	Tstm Wind	0 kts.	1	0	0	0
50 GUILFORD	07/10/1988	1635	Tstm Wind	0 kts.	0	0	0	0
51 GUILFORD	07/10/1988	1700	Tstm Wind	0 kts.	0	0	0	0
52 GUILFORD	04/26/1989	1825	Tstm Wind	0 kts.	0	0	0	0
53 GUILFORD	05/05/1989	1910	Tstm Wind	0 kts.	0	0	0	0
54 GUILFORD	05/05/1989	1940	Tstm Wind	0 kts.	0	0	0	0
55 GUILFORD	05/06/1989	1150	Tstm Wind	0 kts.	0	0	0	0
56 GUILFORD	05/06/1989	1155	Tstm Wind	0 kts.	0	0	0	0
57 GUILFORD	05/06/1989	1210	Tstm Wind	0 kts.	0	0	0	0
58 GUILFORD	05/23/1989	1510	Tstm Wind	0 kts.	0	0	0	0
59 GUILFORD	06/16/1989	1230	Tstm Wind	0 kts.	1	0	0	0
60 GUILFORD	06/16/1989	1730	Tstm Wind	0 kts.	0	0	0	0
61 GUILFORD	07/12/1989	1515	Tstm Wind	0 kts.	0	0	0	0

62 GUILFORD	02/10/1990	0933	Tstm Wind	0 kts.	0	0	0	0
63 GUILFORD	05/01/1990	1655	Tstm Wind	0 kts.	0	0	0	0
64 GUILFORD	07/01/1990	1415	Tstm Wind	0 kts.	0	0	0	0
65 GUILFORD	07/11/1990	1830	Tstm Wind	0 kts.	0	0	0	0
66 GUILFORD	08/29/1990	1300	Tstm Wind	0 kts.	0	0	0	0
67 GUILFORD	10/18/1990	1458	Tstm Wind	0 kts.	0	0	0	0
68 GUILFORD	04/09/1991	1850	Tstm Wind	0 kts.	0	0	0	0
69 GUILFORD	04/29/1991	2030	Tstm Wind	0 kts.	0	0	0	0
70 GUILFORD	07/03/1991	1435	Tstm Wind	50 kts.	0	0	0	0
71 GUILFORD	07/03/1991	1500	Tstm Wind	0 kts.	0	0	0	0
72 GUILFORD	03/10/1992	2255	Tstm Wind	0 kts.	0	0	0	0
73 GUILFORD	03/10/1992	2315	Tstm Wind	0 kts.	0	0	0	0
74 GUILFORD	04/24/1992	1845	Tstm Wind	0 kts.	0	0	0	0
75 GUILFORD	08/11/1992	2110	Tstm Wind	0 kts.	0	0	0	0
76 GUILFORD	08/11/1992	2126	Tstm Wind	57 kts.	0	0	0	0
77 GUILFORD	11/22/1992	2355	Tstm Wind	0 kts.	0	0	0	0
78 Greensboro	08/12/1993	1750	Thunderstorm Winds	0 kts.	0	0	0	0
79 Greensboro	08/17/1993	1750	Thunderstorm Winds	65 kts.	0	0	0	0

80 Greensboro	08/26/1993	1501	Thunderstorm Winds	0 kts.	0	0	0	0
81 Gibsonville	08/26/1993	1530	Thunderstorm Winds	0 kts.	0	0	0	0
82 Brownes Summit	06/08/1995	2010	Thunderstorm Winds	0 kts.	0	0	0	0
83 Julian	10/27/1995	1615	Thunderstorm Winds	0 kts.	0	0	0	0
84 Countywide	01/19/1996	06:15 AM	Tstm Wind	0 kts.	0	0	0	0
85 Greensboro	04/20/1996	03:55 PM	Tstm Wind	0 kts.	0	0	0	0
86 Greensboro	05/11/1996	03:00 PM	Tstm Wind	60 kts.	0	0	200K	0
87 Greensboro	05/24/1996	01:25 PM	Tstm Wind	0 kts.	0	0	0	0
88 Greensboro	03/05/1997	06:20 PM	Tstm Wind	50 kts.	0	0	50K	0
89 Climax	07/16/1997	04:30 PM	Tstm Wind	50 kts.	0	0	0	0
90 Summerfield	07/28/1997	05:25 PM	Tstm Wind	50 kts.	0	0	0	0
91 Greensboro	07/28/1997	06:05 PM	Tstm Wind	50 kts.	0	0	10K	0
92 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088>089	02/16/1998	10:00 PM	High Wind	52 kts.	0	0	0	0
93 Greensboro	06/16/1998	03:25 PM	Tstm Wind	50 kts.	0	0	0	0
94 Greensboro	06/30/1998	04:18 PM	Tstm Wind	50 kts.	0	1	0	0
95 Greensboro	07/07/1999	03:50 PM	Tstm Wind	50 kts.	0	0	0	0
96 Pleasant Garden	03/11/2000	06:10 PM	Tstm Wind	50 kts.	0	0	0	0
97 High Pt	05/20/2000	06:30	Tstm Wind	60	0	0	0	0

		PM		kts.				
98 Gibsonville	05/20/2000	06:40 PM	Tstm Wind	60 kts.	0	0	0	0
99 Greensboro Arpt	05/25/2000	08:46 AM	Tstm Wind	71 kts.	0	0	0	0
100 Greensboro	05/25/2000	09:00 AM	Tstm Wind	70 kts.	0	0	0	0
101 High Pt	05/25/2000	09:00 AM	Tstm Wind	60 kts.	0	0	0	0
102 Summerfield	06/15/2000	05:50 PM	Tstm Wind	50 kts.	0	0	0	0
103 Jamestown	06/15/2000	08:20 PM	Tstm Wind	50 kts.	0	0	0	0
104 Oak Ridge	06/15/2000	10:00 PM	Tstm Wind	50 kts.	0	0	0	0
105 Greensboro	08/10/2000	12:35 AM	Tstm Wind	50 kts.	0	0	0	0
106 Gibsonville	08/18/2000	03:40 PM	Tstm Wind	50 kts.	0	0	0	0
107 Stokesdale	09/14/2000	09:30 PM	Tstm Wind	50 kts.	0	0	0	0
108 Greensboro Arpt	09/14/2000	10:54 PM	Tstm Wind	52 kts.	0	0	0	0
109 Pleasant Garden	05/22/2001	04:15 PM	Tstm Wind	50 kts.	0	0	0	0
110 Summerfield	05/13/2002	05:35 PM	Tstm Wind	50 kts.	0	0	0	0
111 Greensboro	06/01/2002	03:45 PM	Tstm Wind	50 kts.	0	0	0	0
112 Greensboro	06/27/2003	05:30 PM	Tstm Wind	52 kts.	0	0	0	0
113 Greensboro	06/27/2003	05:45 PM	Tstm Wind	50 kts.	0	0	0	0
114 Sedalia	07/13/2003	07:15 PM	Tstm Wind	50 kts.	0	0	0	0
115 Colfax	08/17/2003	07:00	Tstm Wind	50	0	0	0	0

		PM		kts.				
116 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088>089	03/07/2004	07:20 PM	High Wind	65 kts.	0	0	136K	0
117 Stokesdale	08/12/2004	02:25 PM	Tstm Wind	50 kts.	0	0	0	0
118 High Pt	03/08/2005	07:56 AM	Tstm Wind	54 kts.	0	0	0	0
119 Sedalia	03/08/2005	08:30 AM	Tstm Wind	50 kts.	0	0	0	0
120 Monticello	07/13/2005	06:10 PM	Tstm Wind	50 kts.	0	0	0	0
121 Greensboro	04/03/2006	05:35 PM	Tstm Wind	50 kts.	0	0	0	0
122 Greensboro	04/17/2006	01:30 PM	Tstm Wind	50 kts.	0	0	0	0
123 High Pt	04/17/2006	01:30 PM	Tstm Wind	50 kts.	0	0	0	0
124 High Pt	04/17/2006	01:30 PM	Tstm Wind	50 kts.	0	0	0	0
125 Climax	05/18/2006	03:25 PM	Tstm Wind	50 kts.	0	0	0	0
126 Greensboro	06/11/2006	05:30 PM	Tstm Wind	50 kts.	0	0	0	0
127 Greensboro	06/11/2006	05:30 PM	Tstm Wind	50 kts.	0	0	0	0
128 Greensboro	06/11/2006	05:30 PM	Tstm Wind	50 kts.	0	0	0	0
129 Greensboro	06/11/2006	05:30 PM	Tstm Wind	52 kts.	0	0	0	0
130 Greensboro	06/11/2006	06:25 PM	Tstm Wind	50 kts.	0	0	0	0
131 Oak Ridge	07/04/2006	10:50 PM	Tstm Wind	50 kts.	0	0	0	0
132 Jamestown	07/14/2006	03:40 PM	Tstm Wind	50 kts.	0	0	0	0

133 Mc Leansville	07/19/2006	05:05 PM	Tstm Wind	50 kts.	0	0	0	0
134 High Pt	07/19/2006	05:20 PM	Tstm Wind	50 kts.	0	0	0	0
135 Jamestown	07/19/2006	05:45 PM	Tstm Wind	50 kts.	0	0	0	0
136 Gibsonville	07/20/2006	05:40 PM	Tstm Wind	50 kts.	0	0	0	0
137 Jamestown	07/22/2006	06:30 PM	Tstm Wind	50 kts.	0	0	0	0
138 Summerfield	07/28/2006	10:15 PM	Tstm Wind	50 kts.	0	0	0	0
139 Greensboro	08/03/2006	04:55 PM	Tstm Wind	50 kts.	0	0	0	0
140 Pleasant Garden	08/07/2006	05:00 PM	Tstm Wind	50 kts.	0	0	0	0
141 Greensboro	08/30/2006	03:10 PM	Tstm Wind	50 kts.	0	0	0	0
142 Summerfield	08/30/2006	03:28 PM	Tstm Wind	50 kts.	0	0	0	0
143 Greensboro	09/28/2006	05:30 PM	Tstm Wind	50 kts.	0	0	0	0
144 Greensboro	11/16/2006	01:35 AM	Thunderstorm Wind	50 kts.	0	0	0K	0K
145 Greensboro	04/15/2007	16:14 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
146 NCZ022	04/16/2007	10:00 AM	High Wind	54 kts.	0	0	0K	5K
147 Greensboro	06/04/2007	15:45 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
148 Greensboro	06/04/2007	15:45 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
149 Greensboro	06/04/2007	19:25 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
150 Greensboro	06/05/2007	20:15 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K

151 Gibsonville	06/11/2007	15:30 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
152 Stokesdale	06/19/2007	20:05 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
153 Mc Leansville	06/27/2007	16:15 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
154 Gibsonville	06/27/2007	16:20 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
155 Oak Ridge Arpt	06/27/2007	17:20 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
156 Stokesdale	06/27/2007	17:20 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
157 Stokesdale	08/21/2007	15:45 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
158 Greensboro	08/21/2007	16:25 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
159 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088	02/10/2008	12:00 PM	Strong Wind	43 kts.	0	0	5K	0K
160 Guilford	03/04/2008	21:00 PM	Thunderstorm Wind	52 kts.	0	0	0K	0K
161 Deep River	03/04/2008	21:04 PM	Thunderstorm Wind	51 kts.	0	0	0K	0K
162 Hamilton Lakes	03/04/2008	21:15 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
163 (gso)greensboro Rgnl	05/08/2008	22:33 PM	Thunderstorm Wind	54 kts.	0	0	0K	0K
164 Monticello	05/08/2008	23:20 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
165 Greensboro May Arpt	06/23/2008	16:51 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
166 NCZ007>011 - 022 - 024>028 - 038>039 - 041>043 - 073>078 - 084>085 - 088	01/07/2009	08:00 AM	Strong Wind	46 kts.	0	0	30K	0K
167 Colfax	05/06/2009	17:45 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K

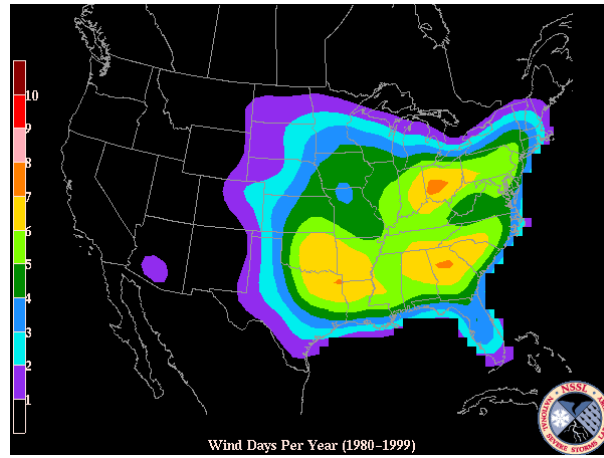
168 Pleasant Garden	05/09/2009	16:18 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
169 Rudd	06/03/2009	16:45 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
170 Hamilton Lakes	06/03/2009	17:22 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
171 Deep River	06/03/2009	17:57 PM	Thunderstorm Wind	58 kts.	0	0	0K	0K
172 Greensboro	06/03/2009	18:30 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
173 Guilquarry	06/10/2009	18:51 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
174 High Pt	07/13/2009	23:45 PM	Thunderstorm Wind	50 kts.	0	0	15K	0K
175 Climax	08/05/2009	17:50 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
176 Brightwood	08/20/2009	12:15 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
TOTALS:					2	1	446K	5K

Key: Mag-Magnitude, Dth-Deaths, Inj-Injuries, PrD-Property Damage, CrD-Crop Damage
Information obtained from [National Climate Data Center – Storm Events \(www.ncdc.noaa.gov\)](http://www.ncdc.noaa.gov)

Severe Thunderstorm History in Guilford County:

In recent years, severe thunderstorms with damaging winds have caused extensive damage in Guilford County. On June 30, 1998 a severe thunderstorm with multiple downbursts caused extensive damage to several neighborhoods across the county and to buildings in downtown Greensboro. One of the hardest hit communities was in northeast Greensboro where trees fell on homes, across power lines and into streets. Power was out for several days as residents struggled in the summer heat to clean up debris left from the powerful storm.

On May 25, 2000 a powerful thunderstorm developed just west of the Piedmont Triad International Airport and moved swiftly through Guilford County. Strong, damaging winds in excess of 80 MPH caused significant damage to trees and power lines. Electricity was out in many parts of Greensboro and Guilford County. Traffic signals were inoperable and trees blocked many roadways. Storm damage and associated cleanup costs topped \$1.8 million.



This graphic most recent from the National Severe Storms Laboratory represents the number of severe thunderstorms with damaging wind days per year for the period of 1980 through 1999. In Guilford County, severe thunderstorms with damaging winds occur on average five times every year. The frequency of severe thunderstorms with damaging wind is high. Also the impact to both population and infrastructure is high. The extent of potential damages includes winds in excess of 100 knots, with hail in excess of several inches diameter.

To see an *animated graphic* of probabilities of severe thunderstorms with damaging winds in each month, please visit <http://www.nssl.noaa.gov/hazard/tanim/winw8099.html>

Vulnerability Assessment/Hazard Risk Index

This hazard index is based on a scale from 1 to 12, with 12 representing the greatest hazard risk. The total index score is based on the ratings assigned to the following analysis factors:

<u>Score</u>	<u>Likelihood</u>	<u>Location</u>	<u>Impact</u>
1	Seldom	Isolated	Localized
2	Possible	Confined	Limited
3	Likely	Significant	Moderate
4	Highly Likely	Widespread	Extreme

Hazard Type	Likelihood of Occurrence	Location of Impact	Impact of Hazard	Hazard Index	Rank of Hazard
Winter Storm (Snow/Ice)	Likely (3)	Widespread (4)	Extreme (4)	11	1
Thunder/Wind Storm	Highly Likely (4)	Significant (3)	Moderate (3)	10	2
Inland Hurricane	Possible (2)	Widespread (4)	Moderate (3)	9	3
Tornado	Possible (2)	Significant (3)	Moderate (3)	8	4
Flash Flooding	Likely (3)	Confined (2)	Limited (2)	7	5
Extreme Temperature	Possible (2)	Significant (3)	Localized (1)	6	6
Lightning Strike	Likely (3)	Isolated (1)	Localized (1)	5	7
Damaging Hail	Seldom (1)	Confined (2)	Localized (1)	4	8
Wildfire	Seldom (1)	Widespread (4)	Limited (2)	3	9

Extreme Temperatures



Extreme temperatures within Guilford County are composed of extreme heat and extreme cold which obviously each have unique concerns, response, recovery and mitigative activities. The parameters of an extreme heat watch, warning, or advisory can vary by location. Generally, temperatures that hover 10 degrees or more above the average high temperature for the region, last for prolonged periods of time, and are often accompanied by high humidity that the body cannot tolerate are defined as extreme heat. A heat wave is a very dangerous situation.

Definitions, characteristics and effects of extremely cold temperatures vary across different areas of the United States. In areas unaccustomed to winter weather, near freezing temperatures are considered "extreme cold." Freezing temperatures can cause severe damage to citrus fruit crops and other vegetation. Pipes may freeze and burst in homes that are poorly insulated or without heat. In areas that have more experience with, and likelihood of, cold temperatures, it may take significantly lower temperatures to be considered "extreme cold." In areas that are more prone to cold weather, long cold spells can cause rivers to freeze, disrupting shipping and ice jams may form and lead to flooding. No matter where the extreme temperatures are located, there are concerns for local farms, crops, livestock, businesses and, most importantly, the citizens within the affected areas.

Recorded Extreme Temperature Events in Guilford County:

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 Statewide	01/15/1994	0000	Extreme Cold	N/A	3	0	500K	0
2 Statewide	01/19/1994	0000	Extreme Cold	N/A	6	0	0	0
3 NCZ022	02/03/1996	10:00 PM	Extreme Cold	N/A	0	0	0	0
4 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088>089	07/22/1998	11:00 AM	Excessive Heat	N/A	0	0	0	0
5 NCZ022	05/27/2008	16:00	Heat	N/A	1	0	0K	0K

		PM						
TOTALS:					10	0	500K	0

Key: Mag-Magnitude, Dth-Deaths, Inj-Injuries, PrD-Property Damage, CrD-Crop Damage Information obtained from National Climate Data Center – Storm Events (www.ncdc.noaa.gov)

Extreme Temperature History in Guilford County:

There is not a sizeable history of extreme temperature events. Nevertheless, even events not officially categorized as “extreme” can pose a threat. Generally, extreme temperature events can be forecast and sufficient warnings issued by the National Weather Service. Appropriate precautions should be taken anytime extreme temperatures are anticipated. The extent of extreme temperatures can be temperatures above 100 degrees and below 32 degrees depending on the duration of the extreme temperatures.

Vulnerability Assessment/Hazard Risk Index

This hazard index is based on a scale from 1 to 12, with 12 representing the greatest hazard risk. The total index score is based on the ratings assigned to the following analysis factors:

<u>Score</u>	<u>Likelihood</u>	<u>Location</u>	<u>Impact</u>
1	Seldom	Isolated	Localized
2	Possible	Confined	Limited
3	Likely	Significant	Moderate
4	Highly Likely	Widespread	Extreme

Hazard Type	Likelihood of Occurrence	Location of Impact	Impact of Hazard	Hazard Index	Rank of Hazard
Winter Storm (Snow/Ice)	Likely (3)	Widespread (4)	Extreme (4)	11	1
Thunder/Wind Storm	Highly Likely (4)	Significant (3)	Moderate (3)	10	2
Inland Hurricane	Possible (2)	Widespread (4)	Moderate (3)	9	3
Tornado	Possible (2)	Significant (3)	Moderate (3)	8	4
Flash Flooding	Likely (3)	Confined (2)	Limited (2)	7	5
Extreme Temperature	Possible (2)	Significant (3)	Localized (1)	6	6
Lightning Strike	Likely (3)	Isolated (1)	Localized (1)	5	7
Damaging Hail	Seldom (1)	Confined (2)	Localized (1)	4	8
Wildfire	Seldom (1)	Widespread (4)	Limited (2)	3	9

Wildfire



There are three types of wildfires:

- Surface Fire – This type burns slowly along the floor of a forest. This is the most common type of wildland fire. This type of fire can damage or even kill trees.
- Ground Fire – Usually occurs from a lightning strike. This type of fire burns on or below the forest floor.
- Crown Fire – This fire is quickly spread by the wind. It tends to jump among the crowns of trees.

Wildland fires are generally characterized by very thick smoke. While there are not any recorded instances of significant wildfire within the County, any area of the State and County is equally vulnerable to the possibility of a wildfire. When a wildfire is first reported, a county or municipal fire department responds. If they are unable to control the fire, the NC Division of Forest Service County Headquarters responds. They use bulldozers and plows to put a break around the fire. If this is unsuccessful, the Forest Service County Headquarters has the option of calling in reinforcements from any of the NC Forest Service's headquarters and districts in North Carolina. If the fire requires resources beyond these, according to the Southeast Compact, all forest service agencies in the southeast agree to assist each other.

For fire prevention, the NC Division of Forest Service will do controlled burns every three years, at a landowner's request, in large wooded areas throughout the county. They also develop pre-suppression lines, where tractors put in firebreaks between the woods and heavily populated areas. There is also law enforcement for prevention, as well as for issuing tickets and citations to people who allow their fires to escape. A problem that is becoming more prevalent in recent years involves the Wildland-Urban interface. People who want to be close to nature move into areas that have historically been wildland. The Wildland/Urban interface is defined as the area where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. Since 1985, Urban/Wildland interface fires have destroyed 9,000 homes in the United States.

Between January 1950 and August 2009, there have not been any significant wildfires reported within Guilford County. The potential extent of damages within the county can be significant dollar losses depending on the location and extent of the damages.

Vulnerability Assessment/Hazard Risk Index

This hazard index is based on a scale from 1 to 12, with 12 representing the greatest hazard risk. The total index score is based on the ratings assigned to the following analysis factors:

<u>Score</u>	<u>Likelihood</u>	<u>Location</u>	<u>Impact</u>
1	Seldom	Isolated	Localized
2	Possible	Confined	Limited
3	Likely	Significant	Moderate
4	Highly Likely	Widespread	Extreme

Hazard Type	Likelihood of Occurrence	Location of Impact	Impact of Hazard	Hazard Index	Rank of Hazard
Winter Storm (Snow/Ice)	Likely (3)	Widespread (4)	Extreme (4)	11	1
Thunder/Wind Storm	Highly Likely (4)	Significant (3)	Moderate (3)	10	2
Inland Hurricane	Possible (2)	Widespread (4)	Moderate (3)	9	3
Tornado	Possible (2)	Significant (3)	Moderate (3)	8	4
Flash Flooding	Likely (3)	Confined (2)	Limited (2)	7	5
Extreme Temperature	Possible (2)	Significant (3)	Localized (1)	6	6
Lightning Strike	Likely (3)	Isolated (1)	Localized (1)	5	7
Damaging Hail	Seldom (1)	Confined (2)	Localized (1)	4	8
Wildfire	Seldom (1)	Widespread (4)	Limited (2)	3	9

III. Vulnerability Assessment

Vulnerability assessment in Guilford County helps to identify areas that are most likely to be affected by different kinds of hazard events. People and buildings that are in known hazard areas can be relocated to lower risk areas based on the findings of the vulnerability assessment. Vulnerability is defined as the level of exposure to risk combined with the lack of resources to combat the event were it were to occur, which would be likely to result in a high impact or loss on the population or area due to an event.

High-risk areas are those that are in or near a known hazard area for pre-identifiable risks such as flooding landslide. Vulnerable populations are those populations who are higher risk for extreme impact from an event. Populations may be vulnerable because they live or work in high-risk areas or they may be vulnerable because educational, socioeconomic or geographic conditions such as put them at higher risk of a disparate impact if they were to be affected by a hazard event . There were no set population patterns we chose to follow only geographical patterns.

Guilford County Major Features

As part of the eleven-county Piedmont Triad region, Guilford County is centered along the piedmont industrial crescent stretching from Raleigh to Charlotte. The County's traditional employment base of textiles, apparel and furniture has diversified greatly in the last fifty years, and now encompasses more than 300 companies producing a wide range of products. An excellent transportation infrastructure, including two interstate highways, Piedmont Triad International Airport, and readily available rail and truck service, has helped to solidify the County's position as a major distribution and transportation center in the Southeast.

Many corporate and regional offices are located in Guilford, including Jefferson-Pilot, Volvo Trucks North America, Lorillard Corporation, and VF Corporation. The International Home Furnishings Market in High Point attracts some 140,000 visitors annually, generating millions of dollars in economic benefits to the community. Aggressive economic recruitment efforts by both the private and public sectors have yielded many new corporate neighbors. Since 2004, Guilford County has awarded economic incentives to create 1,968 new job opportunities, retain 900 existing jobs and generate \$248.5 million in capital investment in the economy. The Guilford County Board of Commissioners has awarded economic incentives to 10 companies in the last three years. The companies that expanded operations and added jobs or retained current jobs include CitiCard; Purolator Facet, Inc.; R.F. Micro; Transportation System Solutions; International Textile Group (Burlington Industries and Cone Mills); Stockhausen; Southern Film Extruders; Volvo Trucks-North America; Comair, Inc.; and Legacy Paddlesports. From 1994 through 2003, Guilford County provided a total of 15 job growth incentives. In 2005 a new CitiCard call center opened on Millstream Road in the eastern portion of Guilford County. Incentives authorized by the Guilford County Board of Commissioners and other economic partners helped CitiCard to create 1,000 new jobs and retain 700 already based here, with a capital investment of \$20 million.

Guilford County affords the full range of amenities of a thriving urban area, including three regional shopping malls and more than three million square feet of retail space. Five acute care hospitals provide nearly 1,500 licensed beds, and three nationally prominent teaching hospitals are within an hour's drive of the County.

The Severe Repetitive Loss Program (SRL) is designed to offer more assistance to those properties that have experienced more frequent flooding losses. An SRL property is a residential property that is covered under an NFIP flood insurance policy and that has at least four NFIP claim payments (including building and contents) over \$5,000 each, and the cumulative amount of such claims payments exceeds \$20,000 or for which at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building. Claims must have taken place within the past ten years.

According to North Carolina Emergency Management in Guilford County, City of Greensboro and City of Archdale there have been 31 losses (claims) on four single family properties in the Severe Repetitive Loss program amounting to \$465,288.37. Under the Repetitive Loss program, Guilford County and the City of Greensboro have a combined 184 losses (claims) on 45 properties amounting to losses of \$3,762,834.34. This includes 29 single family properties, 3 non residential properties, 11 other residential properties and two condo properties. The City of Greensboro and Guilford County are acutely aware of the undeveloped and under-developed properties that exist in the areas with repetitive losses. They have tailored, and continue to tailor, their building codes and water policies to minimize building up of areas that are prone to flooding. The jurisdictions continue to strive for restrictive code regulations in these areas.

NFIP Strategy

Guilford County, Oak Ridge, Pleasant Garden, Sedalia, Stokesdale, and Whitsett all participate in the NFIP due to shared goals with the Federal Government of reducing loss of life and property caused by flooding, reducing disaster relief costs caused by flooding, and making affordable federally backed insurance coverage available to property owners.

All jurisdictions have adopted ordinances for flood damage prevention that exceed the minimum NFIP floodplain management requirements located in Title 44 of the Code of Federal Regulations. New construction and substantial improvements must be flood resistant and meet a two feet freeboard above the base flood elevation. Ordinances further guide development away from flood hazard areas by requiring all subdivisions to set aside special flood hazard area in drainage and open space easements or dedicate the land to the jurisdiction and the public as drainageway and open space. Furthermore, non-special flood hazard areas that are subject to periodic flooding are regulated by development ordinances. All streams that have more than a 120 acre drainage area are required to be dedicated or contained in an easement a distance of 55' from the centerline of the stream, thus preventing future development along these drainageways.

All communities have effective Flood Insurance Rate Maps dated June 18, 2007 or later which utilized LIDAR based topography and incorporates aerial photography. FIRM maps are updated internally as letters of map change are received from FEMA. Jurisdictions will continue to oversee all development for compliance with their flood damage prevention ordinances and rely on FEMA and the North Carolina Department of Crime Control and Public Safety, Division of Emergency Management for expert guidance when required.

Within the last two years the towns of Oak Ridge, Sedalia, and Stokesdale have participated in a Community Assistance Visit (CAV) in which no violations were identified. This is the highest rating that can be achieved during a CAV.

IV. Capability Assessment

Introduction

This portion of the Plan assesses the current capacity to mitigate the effects of the natural hazards identified for Guilford County and its municipalities to include the Cities of Gibsonville, Greensboro and High Point, the Towns of Jamestown, Oak Ridge, Pleasant Garden, Sedalia, Stokesdale, Summerfield and Whitsett. The assessment includes a comprehensive examination of the following local government capabilities:

- 1. Staff & Organizational Capability*
- 2. Technical Capability*
- 3. Policy & Program Capability*
- 4. Fiscal Capability*
- 5. Legal Authority*
- 6. Political Willpower*

The purpose of conducting this capabilities assessment is to identify potential hazard mitigation opportunities available to Guilford County and its municipalities through its operation as a local government. Careful analysis should detect any existing gaps, shortfalls or weaknesses within existing government activities that could exacerbate community vulnerability. The assessment will also highlight the positive measures already in place at the County level, which should continue to be supported and enhanced if possible through future mitigation efforts. The capabilities assessment serves as the foundation for designing an effective hazard mitigation strategy. It not only helps establish the goals and objectives for Guilford County to pursue under this plan, but also ensures that those goals and objectives are realistically achievable under current local conditions.

For the 2010 update to this plan, the County and each municipality thoroughly reviewed the information that was provided in the previous plan update. The information was either confirmed to be correct or was updated to reflect current information.

It is important to note that it is critical for Guilford County and its municipalities to leverage and improve upon the existing capabilities for improving mitigation. All of these policies can be applied for improving mitigation capabilities, and the county plans to leverage these resources to the maximum extent possible.

1. Staff and Organizational Capability

Guilford County has limited staff and organizational capability to implement hazard mitigation strategies. An eleven member Board of Commissioners who has the responsibility of serving the people and improving the quality of life in the county governs Guilford County. The County is divided into eleven municipal cities, each being served by a Mayor and Board of Alderman or City Council. Terms on the board are staggered with elections being held every four years. A County Manager, hired by the commissioners, acts on their behalf and manages County finances and services. More specifically, the

County Manager directs and supervises the administration of all county offices, boards, commissions and agencies under the general direction and control of the Board. Guilford County has a number of professional staff departments to serve its residents and to carry out day-to-day administrative activities. These include the following: Legal, Internal Audit, Human Services (Mental & Public Health, Social Services, Transportation and Coordinated Services), Public Safety (Emergency Management, Emergency Services, Court Alternatives, Sheriff), Cooperative Extension Office, Community Development (Planning and Zoning, Inspections and Permits, Watershed Protection, Stormwater Management, Floodplain Management), Board of Elections, Register of Deeds, Tax, Budget/Management & Evaluation, General Services, Purchasing, Finance, Human Resources, Information Services and Risk Management Departments.

Of the above-listed County departments, the following have been assigned specifically delegated responsibilities to carry out hazard mitigation activities: Emergency Management, Community Development and Municipal offices. Each of these has been integrally involved in the development of, and update to, this mitigation plan in order to identify gaps, weaknesses or opportunities for enhancement with existing mitigation programs.

2. Technical Capability

Guilford County has some technical capability to implement hazard mitigation strategies.

Technical Expertise: Guilford County does have a full-time Planner, Emergency Manager, Building Inspector, Housing Specialist and Information Technology staff employed to administer the County's hazard mitigation programs. Each can assist all jurisdictions.

Geographic Information Systems (GIS): County and City GIS systems can best be described as a set of tools (hardware, software and people) used to collect, manage, analyze and display spatially referenced data. Many local governments are now incorporating GIS systems into their existing planning and management operations. Guilford County currently has GIS capabilities.

Internet Access: Guilford County does provide its employees and citizens with high-speed broadband internet as established under the North Carolina Department of Commerce. Internet access opens up an enormous door for local officials to keep abreast of the latest information relative to their work, and makes receiving government services more affordable and convenient. According to the North Carolina Rural Economic Development Center, information technology also offers increased economic opportunities, higher living standards, more individual choices, and wider and more meaningful participation in government and public life. Simply put, information technology can make distance – a major factor for Guilford County officials and residents - far less important than it used to be. It is believed that internet access will help further the County's hazard mitigation awareness programs, but should be supplemented with more traditional (and less technical) means as well.

3. Fiscal Capability

Guilford County has limited fiscal capability to implement hazard mitigation strategies. The majority of the 2009-2010 budget funds are obligated to human services and education, although "public safety" did cost the county \$99,571,677 for this period according to the most recent financial statements. Guilford County receives most of its revenues through Ad Valorem taxes and through restricted intergovernmental contributions (federal and state pass through dollars). It is highly unlikely that Guilford County could afford to provide the local match for the existing hazard mitigation grant programs if the State of North Carolina did not provide the match. Considering the current budget deficits at both the State and local government levels in North Carolina, combined with the apparent

increased reliance on local accountability by the Federal government, this is a significant and growing concern for Guilford County.

Under the Disaster Mitigation Act of 2000, FEMA has made special accommodations for "small and impoverished communities", who will be eligible for a 90 percent Federal share, 10 percent non-Federal cost split for projects funded through the Pre-Disaster Mitigation Grant Program. Unfortunately, according to the current Interim Final Rule for Section 322 of the Act, Guilford County will not qualify as a small and impoverished community. The definition is restricted to "communities of 3,000 or fewer individuals that is identified by the State as a rural community." The North Carolina Department of Commerce classifies counties into one of three tiers to determine the lack of economic resources and the needs for additional assistance. Guilford County is currently classified as a Tier 3 county, or one of the 19 least distressed counties in the state. This designation makes it difficult for the County access to a special utilities fund, priority status for Community Development Block Grant funds for economic development, and a waiver of local matching fund requirements for CDBG funds and Industrial Development Fund loans and grants.

4. Policy and Program Capability

This part of the capabilities assessment includes the identification and evaluation of existing plans, policies, practices, programs, or activities that either increase or decrease the community's vulnerability to natural hazards. Positive activities, which decrease hazard vulnerability, should be sustained and enhanced if possible. Negative activities, which increase hazard vulnerability, should be targeted for reconsideration and thoroughly addressed within the mitigation strategy for Guilford County.

Recent Hazard Mitigation Efforts

Guilford County has not undertaken any new hazard mitigation projects; however the City of Greensboro has purchased several homes and relocated families out of the floodway. Other recent mitigation efforts are summarized as follows:

Community Rating System Activities

Communities that regulate development in floodplains are able participate in the National Flood Insurance Program (NFIP). In return, the NFIP makes federally backed flood insurance policies available for properties in the community. The Community Rating System (CRS) was implemented in 1990 as a program for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards. There are ten CRS classes: class 1 requires the most credit points and gives the largest premium reduction; class 10 receives no premium reduction. Guilford County participates in the Community Rating System as a "Class 8" community. This allows County residents to receive a 10 percent discount on their flood insurance premiums for policies purchased under the NFIP.

Emergency Operations Plan

Guilford County has developed an Emergency Operations Plan (EOP), which predetermines actions to be taken by government agencies and private organizations in response to an emergency or disaster event. The EOP was reviewed for revision in July 2009. The EOP describes the County's capabilities to respond to emergencies and establishes the responsibilities and procedures for responding effectively to the actual occurrence of a disaster. The EOP does not specifically address hazard mitigation, but it does identify the specific operations to be undertaken by the County (to protect lives and property before,

during and immediately following an emergency). There are no foreseeable conflicts between this Hazard Mitigation Plan and Guilford County's Emergency Operations Plan, primarily because each plan focuses on a separate phase of emergency management.

Floodplain Management Plan

In November of 2008, Guilford County published the Floodplain Development Technical Manual which introduces the concepts of floodplain management and gives detailed information for floodplain regulations and development within the county.

Stormwater Management Plan

Guilford County currently has several documents and reports on stormwater management including: A comprehensive stormwater management plan developed to meet the requirements of the Randleman Lake Water Supply Watershed Protection Rules, a Comprehensive Stormwater Management Program Report, National Pollutant Discharge Elimination System (NPDES) Phase II, and Guilford County's Comprehensive Stormwater Management Plan to meet the NPDES Phase II Rules 15A NCAC 2H .0126 to comply with federal stormwater requirements, and a Stage 1 adaptive management program for existing development in the Jordan Lake watershed required by Session Law 2009-216. These three documents help to identify the copious amounts of work that the county is doing to effectively manage the stormwater within the County.

County Ordinances

Guilford County has adopted several ordinances that are relevant to hazard mitigation. The following information provides an inventory of these ordinances, along with specific information to be considered when developing this plan's mitigation strategy. For each ordinance, the purpose is identified, a condensed description is provided, and a quantification of its "mitigation effectiveness" is listed (i.e. high, moderate or low). This worksheet will continue to be revisited by Guilford County when considering how to strengthen its existing mitigation program through local ordinances.

Inventory of Local Ordinances

Guilford County Emergency Operations Plan (EOP)

Revised in June 2007 and reviewed for revision every year since that time, the EOP was created to establish predetermined actions taken by government and response organizations in response to an emergency or disaster event. The EOP describes the County's capabilities to respond to emergencies and establishes the responsibilities and general operating guideline for responding effectively to an actual occurrence of a disaster.

Mitigation Effectiveness: Low

The EOP does not specifically address hazard mitigation, but it does identify the specific operations to be undertaken by the County (to protect lives and property before, during and immediately after an emergency). There are no conflicts or adverse effects that the EOP or hazard mitigation plan will have on each other due to each focuses on different phases of Emergency Management. *Administered by Guilford County Emergency Management.*

Subdivision Ordinance

The Guilford County Subdivision Ordinance requires the land between the natural one-hundred-year flood contour lines to be set apart from development in a drainageway and open space easement or to be dedicated voluntarily to the public during the subdivision process. It also requires that drainage channels

carrying concentrated flow from a two acre or larger drainage basin be protected with a drainage easement.

Mitigation Effectiveness: Moderate

Although not designed specifically for hazard mitigation purposes, this ordinance will prevent flood losses in tandem with the Watershed Protection and Soil Erosion & Sedimentation Control Ordinance. It will also minimize the adverse effects that development can have on Stormwater drainage through impervious surface requirements and through sedimentation and erosion control. Through its roadway requirements, the ordinance also provides for adequate ingress and egress to subdivisions by emergency vehicles for fires or severe weather events. *Administered by the Planning and Development Department.*

Soil Erosion & Sedimentation Control Ordinance

Sub-section 7-4.1 of the Guilford County Soil Erosion and Sedimentation Control Ordinance require that any person initiating land-disturbing activity that exceeds one acre be required to submit an erosion control plan to the County. The objectives of this requirement are to identify critical areas, limit time of exposure, limit exposed areas, control surface water, control sedimentation, and manage Stormwater runoff.

Mitigation Effectiveness: Moderate

This ordinance assists with the control of run-off and pollution of public water sources that is limited in Guilford County.

Watershed Protection Ordinance

Sections 7-1 through 7-3 of the Guilford County Watershed Protection Ordinance control the density of development in designated General Watershed Areas (GWA) and Watershed Critical Areas (WCA) of the County's drinking-water- supply watersheds. These measures are in place to protect the quality of the drinking water supply of Greensboro and surrounding jurisdictions. Sub-section 7-1.11 also requires an inventory to be maintained of all hazardous materials used and stored in the watershed, as well as a spill/failure containment plan and safeguards against contamination. Properties in the GWA or WCA are also required to comply with federal hazardous substances regulations if regulated materials are stored or used on site. Sub-section 7-2.3(F) spells out measures to reduce and contain spills in the WCA, and contains a list of prohibited land uses in designated WCAs.

Mitigation Effectiveness: Low

This ordinance protects water sources in Guilford County. This is a low mitigation hazard; however, it controls the amount of development in the critical areas near watersheds that which have flood zones.

Administered by Guilford County Planning and Development Department.

Manufactured Home Parks Ordinance

Sub-section 6-4.56 of the Guilford County Development Ordinance requires that manufactured home spaces in manufactured dwelling parks be located on ground with an elevation that is not susceptible to flooding and which is graded to prevent any water from pooling or accumulating on or around the manufactured home park. Each space is required to be graded and grassed to prevent erosion and provide adequate storm drainage away from the manufactured home.

Mitigation Effectiveness: High

This ordinance prevents the development and placement of manufacture homes in a flood zone.

Administered by the Planning and Development Department.

Zoning Ordinances

Article 4 of the Guilford County Development Ordinance establishes zoning districts within the county, lists permitted uses within those districts, and outlines dimensional requirements for all permitted uses. Requirements include building height limitations, lot coverage requirements, building setbacks, and minimum lot sizes. These zoning requirements are, in part, a means of protecting the health and safety of inhabitants. These requirements reduce the likelihood of fire spreading during a fire emergency, separate property uses from traffic, separate residential uses from potentially polluting industrial uses, create the lot sizes necessary to site drinking-water wells a safe distance from septic fields, etc.

Mitigation Effectiveness: High

Zoning will prevent the development of certain building in critical areas. For example, commercial buildings with parking lots will not be built in residential zones. ***Administered by the Planning and Development Department.***

Departmental Budgets

The Planning and Development Department's budget includes staff to administer and enforce the Guilford County Development Ordinance, which comprises the Zoning Ordinance, the Subdivision Ordinance, the Soil Erosion and Sedimentation Control Ordinance, the Watershed Protection Ordinance, the Manufactured Home Parks Ordinance, etc., and includes staff to ensure that structures in the county are built and maintained in compliance with the NC Building Code.

Mitigation Effectiveness: Moderate

The Community Development Department's personnel within Guilford County assure compliance and enforcement and regulate building permits. ***Budget is approved and controlled by Guilford County Board of Commissioners.***

Administration Ordinance (BOCC, Boards, Commissions, Committees)

Article 9 of the Guilford County Development Ordinance recognizes the Board of County Commissioners as the governing body who will provide for the manner in which the provisions of the Ordinance will be determined, established, enforced, amended, supplemented or changed. Section 9 also recognizes and outlines the procedures for the Boards, Commissions, and Committees, which are appointed by the BOCC to carry out the duties associated with application and enforcement of the Ordinance.

Mitigation Effectiveness: Moderate

These Boards can control the changes needed to enhance hazard mitigation thru ordinance revisions, changes and amendments that will affect Guilford County. ***Controlled by Guilford County Board of Commissioners.***

Stormwater Management Ordinance

Guilford County currently has several documents and reports on stormwater management including: A comprehensive stormwater management plan developed to meet the requirements of the Randelman Lake Water Supply Watershed Protection Rules, a Comprehensive Stormwater Management Program Report, National Pollutant Discharge Elimination System (NPDES) Phase II, and Guilford County's Comprehensive Stormwater Management Plan to meet the NPDES Phase II Rules 15A NCAC 2H .0126 to comply with federal stormwater requirements. These three documents help to identify the copious amounts of work that the county is doing to effectively manage the stormwater within the County.

Mitigation Effectiveness: Moderate

This ordinance assists with management of stormwater and its related preparedness and recovery actions.

Floodplain Management Plan

In November of 2008, Guilford County published the Floodplain Development Technical Manual which introduces the concepts of floodplain management and gives detailed information for floodplain regulations and development within the county.

Mitigation Effectiveness: High

This is very helpful with managing the planning of the flood waters within the County.

Bylaws of the Zoning Board of Adjustment

The bylaws of the Zoning Board of Adjustment require Board members to be thoroughly familiar with the requirements of the Guilford County Zoning Ordinance, so that they may grant variances to the County's Zoning requirements, as well as to hear appeals of decisions concerning floodplain boundaries and floodplain permits.

Mitigation Effectiveness: High

These bylaws serve a critical purpose that can prevent the building or the infringement to the floodplains. Once ordinances are passed, Zoning can enforce these thru their bylaws. *Administered and enforced by Planning and Development Department.*

State Fire Prevention Code

Guilford County has adopted the North Carolina International Residential and Commercial Building Codes. Required fire detection measures for one- and two-family dwellings are outlined in the residential code. The commercial code (Chapter 9, Fire Suppression Systems) details the requirements for fire prevention and suppression systems, and fire alarm and detection systems, required for all other structures, including commercial, industrial, institutional, recreational, and multi-family structures. Fire is often a by-product of natural hazards. Adherence to the State Fire Prevention Code will help prevent and mitigate fires.

Mitigation Effectiveness: High

Through these codes, all structural mitigation measures involve constructing, retrofitting homes, businesses and other structures will be constructed to high standards to resist wind, load bearing, etc. *Enforce by Guilford County Fire Marshall's Office.*

Emergency Declaration Ordinance

The Emergency Declaration Ordinance is an ordinance which allows Guilford County to Declare a State of Emergency which allows certain restrictions on the sale of commodities, and enacts curfews or other local laws which may be needed in the event of an emergency.

Mitigation Effectiveness: Low

This does not affect hazard mitigation but can assist the administration of emergency aid from the State or other jurisdictions. *Administered when needed by Guilford County Manager and Board Chair.*

Statewide Mutual Aid Agreement

The NC Association of County Commissioners and League of Municipalities have developed a statewide mutual aid agreement, which coordinates the allocation of resources between communities during emergencies.

Mitigation Effectiveness: Low

Low priority and effect on hazard mitigation. Will be greatly used during response and recovery during emergencies. *Administered by NC Division of Emergency Management.*

Open Space Report

The Guilford County Open Space Report, adopted April 16, 2009, by the Board of County Commissioners, recommends that wetlands, creek, stream and river corridors, and buffers for drinking water supply lakes and streams be acquired and preserved. Following these recommendations will help to prevent or mitigate future flooding events and protect Greensboro's drinking water supply.

Mitigation Effectiveness: High

Comprehensive Plan/Area Plans

Guilford County's comprehensive plan and area plans encourage new development that is orderly and contiguous with existing developed areas, with outlying areas reserved for very low-density rural residential development and farming uses. When implemented, this recommended pattern of development ensures that emergency services can be supplied to the greatest number of people in the shortest amount of time.

Mitigation Effectiveness: Moderate

Development in areas of low-density can help reduce the impact on land absorption, run-off and Stormwater management. *Administered by the Planning and Development Department.*

North Carolina Building Code

The County requires builders to comply with the North Carolina International Residential and Commercial Building Codes. These codes prescribe that buildings and structures be constructed to safely support all loads, including flood loads, snow loads, wind loads and seismic loads.

Mitigation Effectiveness: High

These codes are important to the Housing Standards of Guilford County for the safety and strength of homes to resist damage from high winds, driven rain and heavy snows/ice during natural weather events. Additionally, this will decrease construction debris to be disposed of if buildings and homes are damaged. *Administered by Guilford County Fire Marshall's Office and Planning and Development Department.*

Floodplain Regulations

Section 7-5 of the Guilford County Development Ordinance regulates development in special flood hazard areas (floodways, floodway fringe, one-hundred-year floodplain), sets building and development standards for flood hazard reduction, and sets stream non-encroachment widths for streams without established floodways or base flood elevations.

Mitigation Effectiveness: High

This ordinance helps to decrease the construction of homes and buildings in a special flood hazard area. Infringement to these areas will not be allowed and base flood elevations will be established. With this decrease of development, the flood hazard reduction areas will increase. *Administered by the Planning and Development Department.*

5. Legal Capability

Local governments in North Carolina have a wide range of tools available to them for implementing mitigation programs, policies and actions. A hazard mitigation program can utilize any or all of the four

broad types of government powers granted by the State of North Carolina, which are (a) Regulation; (b) Acquisition; (c) Taxation; and (d) Spending. The scope of this local authority is subject to constraints, however, as all of North Carolina's political subdivisions must not act without proper delegation from the State. Under a principle known as "Dillon's Rule," all power is vested in the State and can only be exercised by local governments to the extent it is delegated. Thus, this portion of the capabilities assessment will summarize North Carolina's enabling legislation, which grants the four types of government powers listed above within the context of available hazard mitigation tools and techniques.

A. Regulation

General Police Power

North Carolina's local governments have been granted broad regulatory powers in their jurisdictions. North Carolina General Statutes (N.C.G.S.) bestow the general police power on local governments, allowing them to enact and enforce ordinances which define, prohibit, regulate or abate acts, omissions, or conditions detrimental to the health, safety, and welfare of the people, and to define and abate nuisances (including public health nuisances). Since hazard mitigation can be included under the police power (as protection of public health, safety and welfare), towns, cities and counties may include requirements for hazard mitigation in local ordinances. Local governments may also use their ordinance-making power to abate "nuisances," which could include, by local definition, any activity or condition making people or property more vulnerable to any hazard (N.C.G.S. Ch. 160A Art. 8 (Delegation and Exercise of the General Police Power to Cities and Towns); Ch 153A, Art. 6 (Delegation and Exercise of the General Police Power to Counties). Guilford County has enacted and enforces regulatory ordinances designed to promote the public health, safety and general welfare of its citizenry. These ordinances are listed and further discussed in Section 3.

Building Codes and Building Inspection

Many structural mitigation measures involve constructing and retrofitting homes, businesses and other structures according to standards designed to make buildings more resilient to the impacts of natural hazards. Many of these standards are imposed through the building code. North Carolina has a state mandated building code, which applies throughout the state (N.C.G.S. 143-138(c)). However, municipalities and counties may adopt codes for their respective areas if approved by the state as providing "adequate minimum standards" (N.C.G.S. 143-138(e)). Local regulations cannot be less restrictive than the state code. Exempted from the state code are: public utility facilities other than buildings; liquefied petroleum gas and liquid fertilizer installations; and farm buildings outside municipal jurisdictions. No state permit may be required for structures under \$20,000. (Note that exemptions apply only to state, not local, permits). Local governments in North Carolina are also empowered to carry out building inspections. N.C.G.S. Ch. 160A, Art. 19. Part 5; and Ch. 153A Art. 18, Part 4 empower cities and counties to create an inspection department, and enumerates its duties and responsibilities, which include enforcing state and local laws relating to the construction of buildings, installation of plumbing, electrical, heating systems, etc.; building maintenance; and other matters. Guilford County has adopted the state building code, and has established a Building Inspections Department to carry out its building inspections.

Land Use

Regulatory powers granted by the state to local governments are the most basic manner in which a local government can control the use of land within its jurisdiction. Through various land use regulatory

powers, a local government can control the amount, timing, density, quality, and location of new development. All of these characteristics of growth can determine the level of vulnerability of the community in the event of a natural hazard. Land use regulatory powers include the power to engage in planning, enact and enforce zoning ordinances, floodplain ordinances, and subdivision controls. Each local community possesses great power to prevent unsuitable development in hazard-prone areas. See N.C.G.S. Ch. 160A, Art. 8. (Delegation and Exercise of the General Police Powers to Cities and Towns); Art. 19 (Planning); Part 3 (Zoning); and Ch. 153A, Art. 6 (Delegation and Exercise of the General Police Power to Counties); Art. 18 (Planning and Regulation of Development); Part 2 (Subdivision Regulation); and Part 3 (Zoning).

Planning

In order to exercise the regulatory powers conferred by the General Statutes, local governments in North Carolina are required to create or designate a planning agency (N.C.G.S. 160A-387). The planning agency may perform any number of duties, including: making studies of the area; determining objectives; preparing and adopting plans for achieving those objectives; developing and recommending policies, ordinances, and administrative means to implement plans; and performing other related duties (N.C.G.S. 160A-361). The importance of the planning powers of local governments is emphasized in N.C.G.S. 160A-383, which requires that zoning regulations be made in accordance with a comprehensive plan. While the ordinance itself may provide evidence that zoning is being conducted “in accordance with a plan”, the existence of a separate planning document ensures that the government is developing regulations and ordinances that are consistent with the overall goals of the community. Guilford County has established a planning department.

Zoning

Zoning is the traditional and most common tool available to local governments to control the use of land. Broad enabling authority for municipalities in North Carolina to engage in zoning is granted in N.C.G.S. 160A-381; and for counties in N.C.G.S. 153A-340 (counties may also regulate inside municipal jurisdiction at the request of a municipality (N.C.G.S. 160A-360(d)). The statutory purpose for the grant of power is to promote health, safety, morals, or the general welfare of the community. Land “uses” controlled by zoning include the type of use (e.g. residential, commercial, industrial) as well as minimum specifications for use such as lot size, building height and set backs, density of population, etc. Local governments are authorized to divide their territorial jurisdiction into districts, and to regulate and restrict the erection, construction, reconstruction, alteration, repair or use of buildings, structures, or land within those districts (N.C.G.S. 160A-382). Districts may include general use districts, overlay districts, and special use districts or conditional use districts. Zoning ordinances consist of maps and written text.

Subdivision Regulations

Subdivision regulations control the division of land into parcels for the purpose of building development or sale. Flood-related subdivision controls typically require that sub-dividers install adequate drainage facilities and design water and sewer systems to minimize flood damage and contamination. They prohibit the subdivision of land subject to flooding unless flood hazards are overcome through filling or other measures, and they prohibit filling of floodway areas. Subdivision regulations require that subdivision plans be approved prior to the division or sale of land. Subdivision regulations are a more limited tool than zoning and only indirectly affect the type of use made of land or minimum specifications for structures. Broad subdivision control enabling authority for municipalities is granted

in N.C.G.S. 160-371, and in 153-330 for counties outside of municipalities and municipal extraterritorial planning jurisdictions (ETJs). Subdivision is defined as all divisions of a tract or parcel of land into two or more lots and all divisions involving a new street (N.C.G.S. 160A-376). The definition of subdivision does not include the division of land into parcels greater than 10 acres where no street right-of-way dedication is involved (N.C.G.S. 160A-376(2)). Guilford County has adopted a Subdivision Ordinance, which is further discussed in Section Three.

Floodplain Regulation

In the summer of 2000, the North Carolina General Assembly adopted Senate Bill 1341, entitled “An Act to Prevent Inappropriate Development in the One Hundred-Year Floodplain and to Reduce Flood Hazards.” This act was proposed through the North Carolina Department of Environment and Natural Resources in the wake of Hurricane Floyd and the catastrophic flooding that followed. Under the Act, the North Carolina General Statutes regulating development within floodways were rewritten to include floodplain regulation (N.C.G.S. 143- 214.51-214.61). The purpose of the new law is to (1) minimize the extent of floods by preventing obstructions that inhibit water flow and increase flood height and damage; (2) prevent and minimize loss of life, injuries, property damage and other losses in flood hazard areas; and (3) promote the public health, safety and welfare of citizens of North Carolina in flood hazard areas. The new statute affects local governments by directing, not mandating, that local government entities: (1) designate a one hundred-year floodplain; (2) adopt local ordinances to regulate uses in flood hazard areas; (3) enforce those ordinances, and (4) grant permits for use in flood hazard areas that are consistent with the ordinance. The act also makes certain that local ordinances meet the minimum requirements of participation in the National Flood Insurance Program (NFIP). The incentive for local governments adopting such ordinances is that they will afford their residents the ability to purchase flood insurance through the NFIP. In addition, communities with such ordinances in place will be given priority in the consideration of applications for loans and grants from the Clean Water Revolving Loan and Grant Fund. Additional points may be awarded for actions taken toward the implementation of a comprehensive land-use plan, such as the adoption of a zoning ordinance or any other measure that significantly contributes to the implementation of the comprehensive land-use plan and the flood hazard prevention ordinance. The statute establishes minimum standards for local ordinances and provides for variances for prohibited uses as follows:

(a) A flood hazard prevention ordinance adopted by a county or city pursuant to this Part shall, at a minimum: (1) Meet the requirements for participation in the National Flood Insurance Program and of this section. (2) Prohibit new solid waste disposal facilities, hazardous waste management facilities, salvage yards, and chemical storage facilities in the 100-year floodplain except as authorized under subsection (b) of this section. (3) Provide that a structure or tank for chemical or fuel storage incidental to a use that is allowed under this section or to the operation of a water treatment plant or wastewater treatment facility may be located in a 100-year floodplain only if the structure or tank is either elevated above base flood elevation or designed to be watertight with walls substantially impermeable to the passage of water and with structural components capable of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy.

(b) A flood hazard prevention ordinance may include a procedure for granting variances for use prohibited under N.C.G.S. 143-215.54(c). A county or city shall notify the Secretary [of Crime Control and Public Safety] of its intention to grant a variance at least 30 days prior to granting the variance. A county or city may grant a variance upon finding that all of the following apply: (1) The use serves a critical need in the community. (2) No feasible location exists for the location of the use outside the 100-year floodplain. (3) The lowest floor of any structure is elevated above the base flood elevation or is

designed to be watertight with walls substantially impermeable to the passage of water and with structural components capable of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy. (4) The use complies with all other applicable laws and regulations. *Guilford County is in good standing with the National Flood Insurance Program. The County has adopted and enforces a Flood Damage Prevention Ordinance.*

B. Acquisition

The power of acquisition can be a useful tool for pursuing local mitigation goals. Local governments may find that the most effective method for completely “hazard proofing” a particular piece of property or area is to acquire the property (either in fee or a lesser interest, such as an easement), thus removing the property from the private market and eliminating or reducing the possibility of inappropriate development occurring. North Carolina legislation empowers cities, towns, counties to acquire property for public purpose by gift, grant, devise, bequest, exchange, purchase, lease or eminent domain (N.C.G.S. Ch 153A. Art. 8; Ch. 1600A. Art. 11). Guilford County has used acquisition as a local mitigation tool.

C. Taxation

The power to levy taxes and special assessments is an important tool delegated to local governments by North Carolina law. The power of taxation extends beyond merely the collection of revenue, and can have a profound impact on the pattern of development in the community. Communities have the power to set preferential tax rates for areas which are more suitable for development in order to discourage development in otherwise hazardous areas. Local units of government also have the authority to levy special assessments on property owners for all or part of the costs of acquiring, constructing, reconstructing, extending or otherwise building or improving beach erosion control or flood and hurricane protection works within a designated area (N.C.G.S. §160A-238). This can serve to increase the cost of building in such areas, thereby discouraging development. Because the usual methods of apportionment seem mechanical and arbitrary, and because the tax burden on a particular piece of property is often quite large, the major constraint in using special assessments is political. Special assessments seem to offer little in terms of control over land use in developing areas. They can, however, be used to finance the provision of necessary services within municipal or county boundaries. In addition, they are useful in distributing to the new property owners the costs of the infrastructure required by new development. Guilford County does levy property taxes, but does not use any preferential tax districts or special assessments for purposes of guiding growth and development.

D. Spending

The fourth major power that has been delegated from the North Carolina General Assembly to local governments is the power to make expenditures in the public interest. Hazard mitigation principles can be made a routine part of all spending decisions made by the local government, including the adoption annual budgets and a Capital Improvement Plan (CIP). A CIP is a schedule for the provision of municipal or county services over a specified period of time. Capital programming, by itself, can be used as a growth management technique, with a view to hazard mitigation. By tentatively committing itself to a timetable for the provision of capital to extend services, a community can control growth to some extent especially in areas where the provision of on-site sewage disposal and water supply are unusually expensive. In addition to formulating a timetable for the provision of services, a local community can regulate the extension of and access to services. A CIP that is coordinated with extension and access policies can provide a significant degree of control over the location and timing of

growth. These tools can also influence the cost of growth. If the CIP is effective in directing growth away from environmentally sensitive or high hazard areas, for example, it can reduce environmental costs.

6. Political Willpower

Most Guilford County residents are quite knowledgeable about the potential hazards that their community faces, and in recent years, they have become more familiar with the practices and principles of mitigation. Many flood prone structures have been acquired and relocated or replaced out of harm's way. It is strongly believed that such tangible and visual changes within the community have created a greater sense of awareness among local residents, and that hazard mitigation is a concept that citizens are beginning to readily accept and support. Because of this fact, coupled with Guilford County's history with natural disasters, it is expected that the current and future political climates are favorable for supporting and advancing future hazard mitigation strategies.

Town of Gibsonville

Form of Government: Alderman / Mayor

Mitigation Contact: Ben Baxley, City Manager
Brandon Parker, Planning Director

Mitigation Goals for Fiscal Year 2010 – 2011: No additions or deletions to countywide goals.

Departments: Administration, Fire, Library, Planning, Police, Public Works, Recreation

Are there any structures in your jurisdiction that have sustained repetitive damage?

A couple of houses in floodplain on Driftwood and Wood Streets.

Ordinances, Policies, and Programs Reviewed

<u> X </u>	Guilford County Emergency Operations Plan
<u> X </u>	Subdivision Ordinance
<u> X/State </u>	Soil Erosion & Sedimentation Control Ordinance
<u> X </u>	Watershed Protection Ordinance
<u> X </u>	Manufactured Home Parks Ordinance
<u> X </u>	Zoning Ordinances
<u> X </u>	Budget Fiscal Year 209-2010
<u> X </u>	Administration Ordinance (City Council, Boards, Commissions, and Committees)
<u> X </u>	Stormwater Management Ordinance
<u> X </u>	Bylaws of the Planning and Zoning Board of Adjustment
<u> X </u>	State Fire Prevention Code
<u> X </u>	Emergency Declaration Ordinance

<u> X </u>	Current State Wide Mutual Aid Ordinance
<u> X </u>	Ordinance with respect to Public Nuisance
<u> X </u>	Housing and Building Numbers
<u> X </u>	Water and Sewer Ordinance
<u> X </u>	Floodplain Regulations
<u> X </u>	Motor Vehicle Removal, Storage, and Disposition
<u> X </u>	NC Building Code
<u> X </u>	Open Space / Natural Area Inventory
<u> X </u>	Comp. Plan / Area Plan / 2015

City of Greensboro

Form of Government: City Council / Mayor / City Manager

Mitigation Contact: Graham (Jim) Robinson

Mitigation Goals for Fiscal Year 2010 – 2011: The City of Greensboro shares the same countywide goals.

Departments: Budget & Evaluation, Coliseum, Engineering and Inspections, Environmental Services, Enterprise Solutions, Executive, Finance, Fire, Housing / Community Development, Human Relations, Human Resources, Legal, Libraries, Management Information Systems, Organization Development / Communication, Parks and Recreation, Planning, Police, Support Services, Transportation, Water Resources, Field Operations, Financial and Administrative Services, Information Technology, Legislative, Public Affairs, Special Events

Are there any structures in your jurisdiction that have sustained repetitive damage?

Based on the July 2008 repetitive loss list for City of Greensboro, a total of 36 structures have sustained repetitive losses; however 1 structure on the repetitive loss list has been acquired and demolished by a private developer (1107 Latham Road) leaving 35 structures within the city limits that have sustained repetitive damage.

Ordinances, Policies, and Programs Reviewed

<u>X</u>	Guilford County Emergency Operations Plan
<u>X</u>	Subdivision Ordinance
<u>X</u>	Soil Erosion & Sedimentation Control Ordinance
<u>X</u>	Watershed Protection Ordinance
<u>X</u>	Manufactured Home Parks Ordinance
<u>X</u>	Zoning Ordinances
<u>X</u>	Budget Fiscal Year 2009-2010
<u>X</u>	Administration Ordinance (City Council, Boards, Commissions, and Committees)
<u>X</u>	Stormwater Management Ordinance
<u>X</u>	Bylaws of the Planning and Zoning Board of Adjustment

<u> </u>	
<u> </u>	X State Fire Prevention Code
<u> </u>	X Emergency Declaration Ordinance
<u> </u>	X Current Statewide Mutual Aid Ordinance
<u> </u>	X Comp. Plan / Area Plans / 2015
<u> </u>	X Floodplain Regulations
<u> </u>	X NC Building Code
<u> </u>	X Open Space Report / Natural Areas Inventory

County of Guilford

Form of Government: Manager / County Commissioners / Chairman

Mitigation Contact: Don Campbell

Mitigation Goals for Fiscal Year 2010 – 2011: County goals outlined above

Departments: Administration, Board of Elections, Cooperative Extension Service, Department of Social Services, Emergency Services Department, Finance Department, General Services, Human Resource Department, Information Services, Mental Health, Planning and Development Department, Public Health Department, Purchasing Department, Register of Deeds, Security, Sheriff's Department, Tax Department

Are there any structures in your jurisdiction that have sustained repetitive damage?

Yes, two repetitive loss structures exist.

Ordinances, Policies, and Programs Reviewed

<u> X </u>	Guilford County Emergency Operations Plan
<u> X </u>	Subdivision Ordinance
<u> X </u>	Soil Erosion & Sedimentation Control Ordinance
<u> X </u>	Watershed Protection Ordinance
<u> X </u>	Manufactured Home Parks Ordinance
<u> X </u>	Zoning Ordinances
<u> X </u>	Budget Fiscal Year 2009-2010
<u> X </u>	Administration Ordinance (City Council, Boards, Commissions, and Committees)
<u> X </u>	Stormwater Management Ordinance
<u> X </u>	Bylaws of the Planning and Zoning Board of Adjustment
<u> X </u>	State Fire Prevention Code
<u> X </u>	Emergency Declaration Ordinance

<hr/>	
<hr/>	Current Statewide Mutual Aid Ordinance
<hr/>	
<hr/>	X Open Space Report / Natural Areas Inventory
<hr/>	
<hr/>	X Comp Plan / Area Plans / 2015
<hr/>	
<hr/>	X NC Building Code
<hr/>	
<hr/>	X Floodplain Regulations

City of High Point

Form of Government: City Council / Mayor / City Manager

Mitigation Contact: Lee Burnette – Primary
Barry Tilley - Secondary

Mitigation Goals for Fiscal Year 2010-2011:

No deletions or additions to countywide goals

Departments:

Central Engineering
Communications and Information Services
Community Development and Housing
Economic Development Corporation
Electric
Emergency Management
Financial Services
Fire
High Point Public Library
High Point Transit System
Housing
Human Relations
Human Resources
Parks and Recreation
Planning and Development
Police
Public Information
Public Services
Recycling
Solid Waste Collections and Disposal
Theatre
Transportation
Utilities Customer Service

Are there any structures in your jurisdiction that have sustained repetitive damage?

Eastside treatment plant

Westside treatment plant

Fire Department Headquarters (not in floodplain)

Ordinances, Policies, and Programs Reviewed

- X Guilford County Emergency Operations Plan
- X Subdivision Ordinance
- X Soil Erosion & Sedimentation Control Ordinance
- X Watershed Protection Ordinance
- X Manufactured Home Parks Ordinance
- X Zoning Ordinance
- X Budget Fiscal Year 2009-2010
- X Administration Ordinance (City Council, Boards, Commissions, and Committees)
- X Stormwater Management Ordinance
- X Bylaws of the Planning and Zoning Board of Adjustment
- X State Fire Prevention Code
- X Emergency Declaration Ordinance
- X Current State Wide Mutual Aid Ordinance
- X Open Space / Natural Areas Inventory
- X Housing and Building Numbers
- X Water and Sewer Ordinance
- X Floodplain Regulations

<u> X </u>	Motor Vehicle Removal, Storage, and Disposition
<u> X </u>	NC Building Code
<u> X </u>	Public Nuisance Ordinance
<u> X </u>	Comp. Plan / Area Plans / 2015

Town of Jamestown

Form of Government: Town Council / Mayor

Mitigation Contact: Martha Wolfe

Mitigation Goals for Fiscal Year 2010-2011: No additions or deletions to countywide goals.

Departments: Fire Department, Parks & Recreation Department, Public Service Department including: Water/Sewer Department, Sanitation Department and Streets Department

Are there any structures in your jurisdiction that have sustained repetitive damage? None known.

Ordinances, Policies, and Programs Reviewed

<u> X </u>	Guilford County Emergency Operations Plan
<u> X </u>	Subdivision Ordinance
<u> X </u>	Soil Erosion & Sedimentation Control Ordinance
<u> X </u>	Watershed Protection Ordinance
<u> N/A </u>	Modular Home Parks Ordinance
<u> X </u>	Zoning Ordinances
<u> X </u>	Budget Fiscal Year 2009-2010
<u> X </u>	Administration Ordinance (City Council, Boards, Commissions, and Committees)
<u> X </u>	Stormwater Management Ordinance
<u> X </u>	Bylaws of the Planning and Zoning Board of Adjustment
<u> X </u>	State Fire Prevention Code
<u> X </u>	Emergency Declaration Ordinance
<u> X </u>	Current State Wide Mutual Aid Ordinance

<u> X </u>	Open Space Report / Natural Areas Inventory
<u> X </u>	Housing and Building Numbers
<u> X </u>	Water and Sewer Ordinance
<u> X </u>	Motor Vehicle Removal, Storage, and Disposition
<u> X </u>	Flood Damage Prevention
<u> X </u>	NC Building Code
<u> X </u>	Comp. Plans / Area Plans
<u> X </u>	Public Nuisance Ordinance

Town of Oak Ridge

Form of Government: Town Council / Mayor elected by Council

Mitigation Contact: Rachel Hawley, Town Clerk

Mitigation Goals for Fiscal Year 2010 – 2011: No additions or deletions to the countywide goals.

Departments: Administration, Parks and Recreation

Are there any structures in your jurisdiction that have sustained repetitive damage? None

Ordinances, Policies, and Programs Reviewed

<u> X </u>	Guilford County Emergency Operations Plan
<u> X </u>	Subdivision Ordinance
<u> X </u>	Soil Erosion & Sedimentation Control Ordinance
<u> X </u>	Watershed Protection Ordinance
<u> X* </u>	Manufactured Home Parks Ordinance – *modified ordinance in Zoning
<u> X </u>	Zoning Ordinances
<u> X </u>	Budget Fiscal Year 2009-2010
<u> X </u>	Administration Ordinance (City Council, Boards, Commissions, and Committees)
<u> X </u>	Stormwater Management Ordinance
<u> X </u>	Bylaws of the Planning and Zoning Board of Adjustment
<u> X </u>	State Fire Prevention Code
<u> X </u>	Emergency Declaration Ordinance
<u> X </u>	Current State Wide Mutual Aid Ordinance

<u> </u>	NC Building Code
<u> X </u>	Housing and Building Numbers
<u> </u>	Water and Sewer Ordinance
<u> X </u>	Open Space Report / Natural Areas Inventory
<u> X </u>	Motor Vehicle Removal, Storage, and Disposition
<u> X </u>	Floodplain Regulations
<u> X </u>	Public Nuisance Ordinance
<u> X </u>	Comp. Plan / Area Plan / 2015

Town of Pleasant Garden

Form of Government: Town Council / Mayor

Mitigation Contact: Sandy Carmany

Mitigation Goals for Fiscal Year 2010 – 2011: No additions or deletions to countywide goals

Departments: None

Are there any structures in your jurisdiction that have sustained repetitive damage? None Known

Ordinances, Policies, and Programs Reviewed

<u> X </u>	Guilford County Emergency Operations Plan
<u> X </u>	Subdivision Ordinance
<u> X </u>	Soil Erosion & Sedimentation Control Ordinance
<u> X </u>	Watershed Protection Ordinance
<u> </u>	Manufactured Home Parks Ordinance
<u> X </u>	Zoning Ordinances
<u> X </u>	Budget Fiscal Year 2009-2010
<u> X </u>	Administration Ordinance (City Council, Boards, Commissions, and Committees)
<u> X </u>	Stormwater Management Ordinance
<u> X </u>	Bylaws of the Planning and Zoning Board of Adjustment
<u> X </u>	State Fire Prevention Code
<u> X </u>	Emergency Declaration Ordinance
<u> X </u>	Current State Wide Mutual Aid Ordinance
<u> X </u>	NC Building Code

<u> X </u>	Housing and Building Numbers
<u> </u>	Water and Sewer Ordinance
<u> X </u>	Comp. Plan / Area Plan / 2015
<u> X </u>	Motor Vehicle Removal, Storage, and Disposition
<u> X </u>	Floodplain Regulation
<u> X </u>	Sign Ordinance
<u> X </u>	Open Space Report / Natural Area Inventory

Town of Sedalia

Form of Government: Town Council / Mayor elected by Town Council

Mitigation Contact: Mayor Howard Morgan – Primary
Cam Dungee, Town Clerk - Secondary

Mitigation Goals for Fiscal Year 2010 – 2011: No additions or deletions to countywide goals

Departments: Zoning Board (includes Planning), Finance Officer (council member)
Adjustment Board (town council)

Are there any structures in your jurisdiction that have sustained repetitive damage? None Known

Ordinances, Policies, and Programs Reviewed

<u> X </u>	Guilford County Emergency Operations Plan
<u> X </u>	Subdivision Ordinance
<u> X </u>	Soil Erosion & Sedimentation Control Ordinance
<u> X </u>	Watershed Protection Ordinance
<u> X </u>	Manufactured Home Parks Ordinance
<u> X </u>	Zoning Ordinances
<u> X </u>	Budget Fiscal Year 2009-2010
<u> X </u>	Administration Ordinance (City Council, Boards, Commissions, and Committees)
<u> X </u>	Stormwater Management Ordinance
<u> X </u>	Bylaws of the Planning and Zoning Board of Adjustment
<u> X </u>	State Fire Prevention Code
<u> X </u>	Emergency Declaration Ordinance
<u> X </u>	Current State Wide Mutual Aid Ordinance

<u> X </u>	NC Building Code
<u> X </u>	Housing and Building Numbers
<u> </u>	Water and Sewer Ordinance
<u> X </u>	Open Space Report / Natural Area Inventory
<u> </u>	Motor Vehicle Removal, Storage, and Disposition
<u> X </u>	Floodplain Regulation
<u> X </u>	Comp. Plan / Area Plan / 2015

Town of Stokesdale

Form of Government: Town Council / Mayor

Mitigation Contact: Carolyn Joyner

Mitigation Goals for Fiscal Year 2010-2011: No additions or deletions to countywide goals.

Departments: None

Are there any structures in your jurisdiction that have sustained repetitive damage? No.

Ordinances, Policies, and Programs Reviewed

<u> X </u>	Guilford County Emergency Operations Plan
<u> X </u>	Subdivision Ordinance
<u> X </u>	Soil Erosion & Sedimentation Control Ordinance
<u> X </u>	Watershed Protection Ordinance
<u> X </u>	Manufactured Home Parks Ordinance
<u> X </u>	Zoning Ordinances
<u> X </u>	Budget Fiscal Year 2009-2010
<u> X </u>	Administration Ordinance (City Council, Boards, Commissions, and Committees)
<u> X </u>	Stormwater Management Ordinance
<u> X </u>	Bylaws of the Planning and Zoning Board of Adjustment
<u> X </u>	State Fire Prevention Code
<u> X </u>	Emergency Declaration Ordinance
<u> X </u>	Current State Wide Mutual Aid Ordinance

<u>X</u>	NC Building Code
<u>X</u>	Housing and Building Numbers
<u>X</u>	Comp. Plan / Area Plan / 2015
<u>X</u>	Motor Vehicle Removal, Storage, and Disposition
<u>X</u>	Floodplain Regulation
<u>X</u>	Open Space Report / Natural Area Inventory
<u>X</u>	Public Nuisance Ordinance

Town of Summerfield

Form of Government: Town Council / Mayor/ Manager

Mitigation Contact: Michael Brandt, Town Manager

Mitigation Goals for Fiscal Year 2010-2011: No additions or deletions countywide goals.

Departments: Administration, Planning

Are there any structures in your jurisdiction that have sustained repetitive damage? None

Ordinances, Policies, and Programs Reviewed

<u> X </u>	Guilford County Emergency Operations Plan
<u> X </u>	Subdivision Ordinance
<u> X </u>	Soil Erosion & Sedimentation Control Ordinance
<u> X </u>	Watershed Protection Ordinance
<u> </u>	Manufactured Home Parks Ordinance
<u> X </u>	Zoning Ordinances
<u> X </u>	Budget Fiscal Year 2002-2003
<u> X </u>	Administration Ordinance (City Council, Boards, Commissions, and Committees)
<u> X </u>	Stormwater Management Ordinance
<u> X </u>	Bylaws of the Planning and Zoning Board of Adjustment
<u> X </u>	State Fire Prevention Code
<u> X </u>	Emergency Declaration Ordinance
<u> X </u>	Current State Wide Mutual Aid Ordinance
<u> X </u>	NC Building Code

<u> X </u>	Housing and Building Numbers
<u> </u>	Water and Sewer Ordinance
<u> X </u>	Open Space Report / Natural Area Inventory
<u> </u>	Motor Vehicle Removal, Storage, and Disposition
<u> X </u>	Floodplain Regulation
<u> X </u>	Comp. Plan / Area Plan / 2015
<u> X </u>	Public Nuisance Ordinance

Town of Whitsett

Form of Government: Town Council / Town Administrator / Mayor

Mitigation Contact: Town Administrator Gary Deal

Mitigation Goals for Fiscal Year 2010-2011: No additions or deletions to countywide goals

Departments: Planning

Are there any structures in your jurisdiction that have sustained repetitive damage? None known.

Ordinances, Policies, and Programs Reviewed

<u> X </u>	Guilford County Emergency Operations Plan
<u> X </u>	Subdivision Ordinance
<u> X </u>	Soil Erosion & Sedimentation Control Ordinance
<u> X </u>	Watershed Protection Ordinance
<u> X </u>	Manufactured Home Parks Ordinance
<u> X </u>	Zoning Ordinances
<u> X </u>	Budget Fiscal Year 2009-2010
<u> X </u>	Administration Ordinance (City Council, Boards, Commissions, and Committees)
<u> X </u>	Stormwater Management Ordinance
<u> X </u>	Bylaws of the Planning and Zoning Board of Adjustment
<u> X </u>	State Fire Prevention Code
<u> </u>	Emergency Declaration Ordinance
<u> X </u>	Current State Wide Mutual Aid Ordinance
<u> X </u>	NC Building Code

<u> X </u>	Housing and Building Numbers
<u> </u>	Water and Sewer Ordinance
<u> X </u>	Open Space Report / Natural Area Inventory
<u> X </u>	Motor Vehicle Removal, Storage, and Disposition
<u> X </u>	Floodplain Regulation
<u> X </u>	Comp. Plan / Area Plan / 2015
<u> X </u>	Public Nuisance Ordinance

V. Mitigation Goals

This portion of the plan identifies four goal statements established by Guilford County's Multi-Jurisdictional Hazard Mitigation Committee to represent all of Guilford County and its municipalities. Each goal is written to be general and broad in nature, and can only be achieved through the long-term implementation of more specific objectives. It is intended that each goal listed below will be addressed and realized through the implementation of short-term mitigation objectives and actions established and maintained in the County's mitigation strategies.

For the 2010 plan update, these mitigation goal statements were revisited and were confirmed to still be comprehensive and accurate for the County and all of its municipalities

Goal 1: Increase the internal capabilities of Guilford County and its municipalities to mitigate the effects of natural hazards.

Goal 2: Enhance existing or implement new County, City and Town policies that will reduce the potential damaging effects of hazards without hindering other community goals.

Goal #3: Protect the most vulnerable populations, public buildings, and critical facilities in Guilford County, and its municipalities, through the implementation of cost-effective and technically feasible mitigation projects.

Goal #4: Protect public health, safety and welfare by increasing the public awareness of existing hazards and by enhancing both individual and public responsibility in mitigating risks due to those hazards throughout Guilford County and its Municipalities.

VI. Mitigation Strategy

Introduction

This portion of the plan outlines Guilford County and its municipalities', to include the cities of Gibsonville, Greensboro and High Point, the towns of Jamestown, Oak Ridge, Pleasant Garden, Sedalia, Stokesdale, Summerfield and Whitsett, overall strategy to reduce their communities' vulnerability to the effects of natural hazards. It has been separated into the following two distinct sections: mitigation objectives and mitigation strategies. As a result of the review of the plan for the 2010 plan update, the county and municipalities made several changes to the mitigation objectives for the plan. The updated mitigation objectives are listed below.

A. Mitigation Objectives: The Mitigation Objectives are designed to support and correspond directly with the Community Goals and were developed to provide Guilford County and its municipalities with some measurable, mid-range targets (2-5 years). Each objective is numbered (i.e., "1.1"), with the first digit representing the corresponding Community Goal.

B. Mitigation Actions: The Mitigation Actions are short-term, specific measures to be undertaken by Guilford County and its municipalities in order to achieve the identified objectives. Most of these actions are also hazard-specific. Each action identifies the objective(s) it is intended to achieve, includes some general background information to justify the proposed action, and provides measures to assure successful and timely implementation. Also important to note is that each Mitigation Objective and Mitigation Action is designed to be performance-based, making it easier for Guilford County and its municipalities to measure the plan's progress over time and during the plan's future evaluations. It is expected that while the Community Goals may remain the same for an extended period of time, the objectives and actions included in this Mitigation Strategy will be updated and/or revised through regular enhancements to this plan.

A. Mitigation Objectives

Objective 1.2 Enhance the County's capability to conduct hazard assessments, demonstrate funding needs, and track mitigation activities throughout the county.

Objective 1.3 Ensure that current emergency services are adequate to protect public health and safety.

Objective 2.1 Increase the County's control over development in the floodplain to ensure lives and property are not at risk to future flood conditions.

Objective 2.2 Preserve the natural and beneficial functions of the county's

Floodplain and wetlands through continued support of natural resource protection policies and by discouraging growth in environmentally sensitive areas.

Objective 2.3 Ensure that all new construction is completed using wind-resistant design techniques that will limit damage caused by high winds and reduce the amount of wind-borne debris.

Objective 3.1 Maximize the use of available hazard mitigation grant programs to protect the County's most vulnerable populations and structures.

Objective 3.2 Work with municipalities and all county departments to decrease the number of FEMA-identified "repetitive loss properties" located in Guilford County and the municipalities.

Objective 3.3 Work to ensure that all vital / critical facilities are protected from the effects of natural hazards to the maximum extent possible.

Objective 4.1 Increase the level of knowledge and awareness for Guilford County residents on the hazards that routinely threaten the area.

Objective 4.2 Encourage all eligible county residents to obtain and maintain an active NFIP flood insurance policy.

Objective 4.3 Educate property owners on the affordable, individual mitigation and preparedness measures that can be taken before the next hazard event.

B. Mitigation Techniques

In formulating the Mitigation Strategy, a wide range of activities were considered in order to help achieve the goals of the community and to lessen the vulnerability of Guilford County and its Municipalities to include the Cities of Gibsonville, Greensboro and High Point, the Towns of Jamestown, Oak Ridge, Pleasant Garden, Sedalia, Stokesdale, Summerfield and Whitsett to the effects of natural hazards. In general, all of these activities fall into one of the following broad categories of mitigation techniques.

Available Mitigation Techniques

1. Prevention

Preventative activities are intended to keep hazard problems from getting worse. They are particularly effective in reducing a community's future vulnerability, especially in areas where development has not occurred or capital improvements have not been substantial. Examples of preventative activities include:

- Planning and Zoning
- Open space preservation
- Floodplain regulations
- Stormwater management
- Drainage system maintenance
- Capital improvements programming

2. Property Protection

Property protection measures protect existing structures by modifying the building to withstand hazardous events, or removing structures from hazardous locations. Examples include:

- Acquisition
- Relocation
- Building elevation
- Critical facilities protection
- Retrofitting (i.e., wind proofing, flood proofing, seismic design standards, etc.)
- Insurance
- Safe rooms

3. Natural Resource Protection

Natural resource protection activities reduce the impact of natural hazards by preserving or restoring natural areas and their mitigative functions. Such areas include floodplains, wetlands and dunes. Parks, recreation or conservation agencies and organizations often implement these measures. Examples include:

- Floodplain protection
- Riparian buffers
- Fire resistant landscaping
- Fuel Breaks
- Erosion and sediment control
- Wetland preservation and restoration
- Habitat preservation
- Slope stabilization

4. Structural Projects

Structural mitigation projects are intended to lessen the impact of a hazard by modifying the environmental natural progression of the hazard event. They are usually designed by engineers and managed or maintained by Public Works staff. Examples include:

- Reservoirs
- Diversions / Detention / Retention
- Channel modification
- Storm sewers

5. Emergency Services

Although not typically considered a “mitigation technique,” emergency service measures do minimize the impact of a hazard event on people and property. These commonly are actions taken immediately prior to, during, or in response to a hazard event. Examples include:

- Warning systems
- Emergency planning and management

6. Public Information and Awareness

Public Information and awareness activities are used to advise residents, business owners, potential property buyers, and visitors about hazards, hazardous areas, and mitigation techniques they can use to protect themselves and their property. Examples of measures to educate and inform the public include:

- Outreach projects
- Speaker series / demonstration events
- Hazard map information
- Real estate disclosure
- Library materials
- School children education
- Hazard expositions

C. Mitigation Actions and Techniques

The mitigation actions proposed for Guilford County and its municipalities to include the Cities of Gibsonville, Greensboro and High Point, the Towns of Jamestown, Oak Ridge, Pleasant Garden, Sedalia, Stokesdale, Summerfield and Whitsett to undertake are listed on the pages that follow. Each has been designed to achieve the goals and objectives identified through this Hazard Mitigation Plan. These actions and strategies were coordinated and updated for the 2010 plan update, by the Guilford County Emergency Services department. The actions that are outlined below are those that the County has identified and put forth. For the 2010 plan update,

each municipality had the opportunity to determine its own participation in the County's actions and define actions for itself where appropriate. Where individual municipalities have identified their own actions, they are noted in the subsequent section. Each proposed action includes:

- (1) The appropriate category for the mitigation technique;
- (2) The hazard it is designed to mitigate;
- (3) The objective(s) it is intended to help achieve;
- (4) Some general background information;
- (5) The priority level for its implementation (high, moderate or low);
- (6) Potential funding sources, if applicable;
- (7) The agency/person assigned responsibility for carrying out the strategy;
- (8) A target completion date.

It is important to note that these mitigation actions are short-term, specific measures to be undertaken by Guilford County and its municipalities. It is expected that this component of the plan will be the most dynamic and these actions will be used as the primary indicators to measure the plan's progress over time and will be routinely updated and/or revised through future planning efforts.

D. Priority and Cost-Benefit

A process for prioritization of identified hazard mitigation strategies was performed. The Guilford County Hazard Mitigation Committee used the following criteria for prioritization of hazard mitigation strategies:

- 1) Cost-benefit review
- 2) Results of hazard identification and analysis
- 3) Results of Vulnerability Assessment
- 4) Results of Community Capability Assessment
- 5) Effectiveness in meeting hazard mitigation goals and comprehensive plan goals

The cost-benefit review was given special emphasis, in light of its possible use in environmental reviews for Hazard Mitigation Grant Program, Flood Mitigation Assistance and other federal hazard mitigation projects. This prioritizing and cost-benefit were revisited for the 2010 plan update and mitigation actions were revised based on the most updated information available. The review was completed using the criteria identified above

E. Progress and Update to Actions

Due to funding restrictions, the vast majority of the mitigation actions from the 2004 plan update are still awaiting completion. For clarity, where actions have been completed, they have been removed from the actions outlined below. The county and municipalities do not anticipate any funding to be dedicated to mitigation efforts from their local budgets, and feel it is likely that most, if not all, of the actions outlined below are likely to need federal subsidy. The County will continue to pursue federal and state grants and other sources of funding. Those actions from the 2004 plan that have been deleted due to funding constraints and current political agendas include the following four:

Develop and adopt a “no-rise (in base flood elevation)” clause for the County’s Flood Damage Prevention Ordinance.

Category: Prevention

Hazard: Flood

Objective(s) Addressed: 1.1, 2.1, and 2.2

Background: Many floodplain permitting systems, including those that meet National Flood Insurance Program standards, allow projects outside the floodway to increase base flood elevations by up to one foot. While this may not represent a significant increase for just one project, the cumulative impact of a number of projects in the same floodplain can be significant. By prohibiting any rise throughout the 100-year floodplain, a “no rise” clause ensures that the cumulative impact of multiple permitted projects will not cause flood elevations to rise to unacceptable levels.

Priority: Low

Funding Sources: N/A

Responsibility Assigned to: Guilford County NFIP/CRS

Target Completion Date: June 1, 2005

Collect educational materials on individual and family preparedness/ mitigation measures for property owners, and display at both the library and routinely visited County Offices.

Category: Public Information & Awareness

Hazard: All

Objective(s) Addressed: 1.1, 4.1, 4.2, and 4.3

Background: FEMA, the North Carolina Division of Emergency Management, the National Weather Service and other agencies provide information brochures and pamphlets on property protection measures at no cost to local governments.

Priority: High

Funding Sources: N/A

Responsibility Assigned to: Emergency Management

Target Completion Date: June 1, 2005

Conduct inventory/survey for the County’s emergency response services to identify any existing needs or shortfalls in terms of personnel, equipment or required resources.

Category: Emergency Services

Hazard: All

Objective(s) Addressed: 1.3

Background: A survey should be completed in order to ensure the county’s current emergency services are adequate to protect public health and safety from anticipated hazard events. Any identified needs or shortfalls should become documented and result in specific recommendations to the County Manager for emergency service enhancements.

Priority: Moderate

Funding Sources: Local

Responsibility Assigned to: Emergency Management Coordinator

Target Completion Date: June 1, 2005

Develop an educational flyer targeting NFIP policyholders on the

Increased Costs of Compliance (ICC) coverage, to be disseminated following a flood event that results in substantial damage determinations by the county.

Category: Public Information and Awareness

Hazard: Flood

Objective(s) Addressed: 1.1, 2.1, 2.2, and 4.3

Background: Increased Cost of Compliance (ICC) under the NFIP provides for the payment of a claim to help pay for the cost to comply with State or community floodplain management laws or ordinances from a flood event in which a building has been declared substantially damaged.

When a flood damages an insured building and the State or community declares the building to be substantially damaged, ICC will help pay for the cost to elevate, flood proof, demolish or relocate the building up to \$20,000. This coverage is in addition to the building coverage for the repair of actual physical damages from the flood.

Priority: Moderate

Funding Sources: Local

Responsibility Assigned to: Building Inspector

Target Completion Date: June 1, 2005

2010 Mitigation Actions

ACTION 1: Promote the availability of flood insurance to County and City property owners.

Category: Public Information and Awareness

Hazard: Flood

Objective(s) Addressed: 4.2, 4.3

Background: Guilford County joined the National Flood Insurance Program (NFIP) on February 4, 1987. NFIP flood insurance policies protect property owners by offering affordable rates for protecting both structures and contents. Both Guilford County and the City of Greensboro have developed yearly mailing lists to those in or near a Special Flood Hazard Area (SFHA) promoting the availability of flood insurance.

Priority: High

Funding Sources: Local when available

Responsibility Assigned to: Guilford County, City of Greensboro and City of High Point.

Target Completion Date: Ongoing

ACTION 2: Maintain Geographic Information System (GIS) to maintain current cadastral (building/parcel) data for purposes of conducting more detailed hazard risk assessments and for tracking permitting and land use patterns.

Category: Prevention

Hazard: All

Objective(s) Addressed: 1.2

Background: A GIS system will greatly enhance the County and the City of Greensboro's technical capability to collect, manage, analyze and display spatially referenced data. Guilford County and the City of Greensboro currently have GIS capability, but it has been identified as a

needed enhancement for both the Planning Department and the Building Inspections office to further hazard mitigation goals.

Priority: High

Funding Sources: NC Division of Emergency Management.

Responsibility Assigned to: Planning Department

Target Completion Date: Ongoing

ACTION 3: Continue to acquire and preserve parcels of land subject to repetitive flooding from willing and voluntary property owners.

Category: Property Protection

Hazard: Flood

Objective(s) Addressed: 1.1, 2.2, 3.1, and 3.2

Background: Land acquisition is an effective mitigation technique to permanently eliminate the potential for damages from future flood events. Guilford County and its Municipalities to include the Cities of Gibsonville, Greensboro and High Point, the Towns of Jamestown, Oak Ridge, Pleasant Garden, Sedalia, Stokesdale, Summerfield and Whitsett has successfully applied for and received grant funding to acquire flood prone parcels of land in the past from voluntary and willing property owners.

Priority: High

Funding Sources: FEMA; NC Division of Emergency Management

Responsibility Assigned to: Guilford County Planning and Development Department, City of Greensboro Water Resources and High Point

Target Completion Date: Ongoing

ACTION 4: Regularly calculate and document the amount of flood prone property that is preserved as open space for additional credit points under the Community Rating System (CRS).

Category: Prevention

Hazard: Flood

Objective(s) Addressed: Several

Background: CRS credit is given for areas that are permanently preserved as open space. Although credit is not given for Federal lands, Guilford County and the City of Greensboro maintain (and continues to expand) floodplain areas preserved as open space through land acquisition projects (i.e., HMGP) which protect parcels from development through deed restrictions.

Priority: High

Funding Sources: N/A

Responsibility Assigned to: Guilford County NFIP/CRS, City of Greensboro and City of High Point Engineering Department

Target Completion Date: Ongoing

ACTION 5: Identify the county's most at-risk vital / critical facilities, and evaluate the potential mitigation techniques for protecting each facility to the maximum extent possible.

Category: Prevention

Hazard: All

Objective(s) Addressed: 1.2, 3.1, and 3.3

Background: A thorough evaluation of potential mitigation opportunities for Guilford County and its Municipalities to include the Cities of Gibsonville, Greensboro and High Point, the Towns of Jamestown, Oak Ridge, Pleasant Garden, Sedalia, Stokesdale, Summerfield and Whitsett, critical facilities must still be completed. Currently, there is very little available data on these facilities. An inventory/database on critical facilities should be created and maintained by the County and shared with the N.C. Division of Emergency Management. This inventory should include information on the location and risk to each facility, and should also document any cost-effective mitigation techniques to consider when funding becomes available.

Priority: Moderate

Funding Sources: N.C. Division of Emergency Management and others as available

Responsibility Assigned to: Emergency Management Coordinator

Target Completion Date: Ongoing

ACTION 6: Monitor grant opportunities for funding to establish a local reserve fund for repairing and/or incorporating hazard mitigation measures for public facilities and infrastructure damaged by natural hazards.

Category: Prevention

Hazard: All

Objective(s) Addressed: 3.1, 3.3

Background: Not all hazard events will receive disaster declarations by the State or Federal government, limiting the amount of post-disaster assistance for local governments for certain events. Further, state and federal disaster assistance programs could likely require local matching funds of up to 25 percent. A local reserve fund should ensure Guilford County and its municipalities are prepared to quickly recover and rebuild from hazard events and maximize possible funding opportunities.

Priority: Moderate

Funding Sources: N/A

Responsibility Assigned to: Guilford County Emergency Services

Target Completion Date: Ongoing

ACTION 7: Revise the county's Flood Damage Prevention Ordinance to incorporate cumulative substantial damage or improvement requirements.

Category: Prevention

Hazard: Flood

Objective(s) Addressed: 2.1 and 2.2

Background: The County's ordinance currently limits the definition of "substantial damage" and "substantial improvement" to one-time damage repairs or improvements.

Communities can reduce flood damage by counting improvement and repair projects cumulatively, so that buildings will be brought into compliance with flood protection standards earlier in their life cycle. This will require the county to maintain permit history so when cumulative repairs or improvements equal 50 percent of the building value, the building must be brought up to current codes for floodplain development.

Priority: Moderate

Funding Sources: All options will be explored

Responsibility Assigned to: Guilford County NFIP/CRS, and City of High Point

Target Completion Date: July 1, 2012

ACTION 8: Incorporate the inspection and management of hazardous trees into the county's routine drainage system maintenance process.

Category: Property Protection

Hazard: Hurricanes and Tropical Storms

Objective(s) Addressed: 2.3, 3.3

Background: A significant amount of property damage during high wind events results from tree failure. Trees that fall into utility lines have additional serious consequences such as causing power outages, surges, fires and other damage. The county's ability to recognize and prevent hazardous tree conditions (through inspection, pruning or removal) is the best defense against problems and costly damages resulting from tree failure. Specifically, trees located on county property, which pose immediate threats to property, utility lines and other critical facilities should be addressed.

Priority: Moderate

Funding Sources: Local

Responsibility Assigned to: Guilford County NFIP/CRS and City of Greensboro

Target Completion Date: Ongoing

ACTION 9: As new Repetitive Loss Properties are identified within the County and municipalities, contact all owners and inform them of the assistance available through the federal flood assistance programs, in addition to other flood protection measures.

Category: Public Information & Awareness

Hazard: Flood

Objective(s) Addressed: 3.1, 3.2, and 4.3

Background: A list of FEMA-identified repetitive loss properties is maintained and regularly updated by the Emergency Services department. Each of these properties is targeted by FEMA and the State of North Carolina for Flood Mitigation Assistance (FMA) funding, which will fund up to 75 percent of a mitigation project to eliminate future flood risk (usually through elevation or acquisition or relocation). The North Carolina Emergency Management awards FMA funds on an annual basis. Eligible property owners should be contacted every year to promote the availability of the FMA funding and to determine their level of interest in applying for the program.

Priority: High

Funding Sources: Local

Responsibility Assigned to: Guilford County NFIP/CRS, City of Greensboro and City of High Point

Target Completion Date: Ongoing

ACTION 10: Augment enforcement of the State Building Code and related County ordinances by encouraging wind-resistant design techniques for new residential construction during the county's permit process.

Category: Property Protection

Hazard: Hurricanes and Tropical Storms, Tornadoes, Nor'easters

Objective(s) Addressed: 2.3

Background: Although the State Building Code and local ordinances require certain building practices for wind loss reduction, experts agree that structures built to exceed high wind provisions have a much greater chance of surviving violent windstorms. Additional techniques include adding protection for windows (i.e., shutters), anchoring doorframes with multiple hinges, stiffening garage doors with additional bracing, reinforcing masonry chimneys with vertical steel, and strengthening connections between walls and the roof with hurricane straps and ties. These techniques should be promoted to building contractors and homebuyers by the county for all new residential construction, to the maximum extent possible during the building permits process.

Priority: High

Funding Sources: None identified at this time

Responsibility Assigned to: County and municipal code enforcement officials

Target Completion Date: Ongoing

The Towns within the County have chosen to participate in many actions that the County will undertake. They have also identified actions that are specific to their jurisdictions. It should also be noted that all municipal actions listed below are new for the 2010 plan update

Town of Gibsonville Mitigation Actions

Action 1: Continue to participate in the NFIP

Responsible Department: Town Planner

Potential Funding Sources: State and Federal funding as available

Timeframe to complete: Ongoing

Action 2: Work with the County and State to complete hazard mitigation plan updates

Responsible Department: Town Planner

Potential Funding Sources: State and Federal funding as available; Town planning expertise

Timeframe to complete: Ongoing

Action 3: Continue to identify and document hazard occurrences and potential mitigation projects.

Responsible Department: Town Planner

Potential Funding Sources: Town planning expertise

Timeframe to complete: Ongoing

City of Greensboro Mitigation Actions

ACTION 1: Promote the availability of flood insurance to City property owners.

Category: Public Information and Awareness

Hazard: Flood

Objective(s) Addressed: 4.2, 4.3

Background: Both Guilford County and the City of Greensboro have developed yearly mailing lists to those in or near a Special Flood Hazard Area (SFHA) promoting the availability of flood insurance.

Priority: High

Funding Sources: Local when available

Responsibility Assigned to: City of Greensboro

Target Completion Date: Ongoing

ACTION 2: Maintain Geographic Information System (GIS) to maintain current cadastral (building/parcel) data for purposes of conducting more detailed hazard risk assessments and for tracking permitting and land use patterns.

Category: Prevention

Hazard: All

Objective(s) Addressed: 1.2

Background: A GIS system will greatly enhance the County and the City of Greensboro's technical capability to collect, manage, analyze and display spatially referenced data. Guilford County and the City of Greensboro currently have GIS capability, but it has been identified as a needed enhancement for both the Planning Department and the Building Inspections office to further hazard mitigation goals.

Priority: High

Funding Sources: NC Division of Emergency Management.

Responsibility Assigned to: Planning Department

Target Completion Date: Ongoing

ACTION 3: Continue to acquire and preserve parcels of land subject to repetitive flooding from willing and voluntary property owners.

Category: Property Protection

Hazard: Flood

Objective(s) Addressed: 1.1, 2.2, 3.1, and 3.2

Background: The City of Greensboro has successfully applied for and received grant funding to acquire flood prone parcels of land in the past from voluntary and willing property owners.

Priority: High

Funding Sources: FEMA; NC Division of Emergency Management

Responsibility Assigned to: City of Greensboro Water Resources

Target Completion Date: Ongoing

ACTION 4: Regularly calculate and document the amount of flood prone property that is preserved as open space for additional credit points under the Community Rating System (CRS).

Category: Prevention

Hazard: Flood

Objective(s) Addressed: Several

Background: CRS credit is given for areas that are permanently preserved as open space. Although credit is not given for Federal lands, the City of Greensboro maintains (and continues to expand) floodplain areas preserved as open space through land acquisition projects (i.e., HMGP) which protect parcels from development through deed restrictions.

Priority: High

Funding Sources: N/A

Responsibility Assigned to: City of Greensboro Engineering Department

Target Completion Date: Ongoing

ACTION 5: Identify the city's most at-risk vital / critical facilities, and evaluate the potential mitigation techniques for protecting each facility to the maximum extent possible.

Category: Prevention

Hazard: All

Objective(s) Addressed: 1.2, 3.1, and 3.3

Background: A thorough evaluation of potential mitigation opportunities for The City of Greensboro critical facilities must still be completed. Currently, there is very little available data on these facilities. An inventory/database on critical facilities should be created and maintained by the County and shared with the N.C. Division of Emergency Management. This inventory should include information on the location and risk to each facility, and should also document any cost-effective mitigation techniques to consider when funding becomes available.

Priority: Moderate

Funding Sources: N.C. Division of Emergency Management and others as available

Responsibility Assigned to: Emergency Management Coordinator

Target Completion Date: Ongoing

ACTION 6: Monitor grant opportunities for funding to establish a local reserve fund for repairing and/or incorporating hazard mitigation measures for public facilities and infrastructure damaged by natural hazards.

Category: Prevention

Hazard: All

Objective(s) Addressed: 3.1, 3.3

Background: Not all hazard events will receive disaster declarations by the State or Federal government, limiting the amount of post-disaster assistance for local governments for certain events. Further, state and federal disaster assistance programs could likely require local matching funds of up to 25 percent. A local reserve fund should ensure the City of Greensboro and its municipalities are prepared to quickly recover and rebuild from hazard events and maximize possible funding opportunities.

Priority: Moderate

Funding Sources: N/A

Responsibility Assigned to: Guilford County Emergency Services

Target Completion Date: Ongoing

ACTION 7: Work with the County to revise the county's Flood Damage Prevention Ordinance to incorporate cumulative substantial damage or improvement requirements.

Category: Prevention

Hazard: Flood

Objective(s) Addressed: 2.1 and 2.2

Background: The County's ordinance currently limits the definition of "substantial damage" and "substantial improvement" to one-time damage repairs or improvements. Communities can reduce flood damage by counting improvement and repair projects cumulatively, so that

buildings will be brought into compliance with flood protection standards earlier in their life cycle. This will require the county to maintain permit history so when cumulative repairs or improvements equal 50 percent of the building value, the building must be brought up to current codes for floodplain development.

Priority: Moderate

Funding Sources: All options will be explored

Responsibility Assigned to: City of Greensboro

Target Completion Date: July 1, 2012

ACTION 8: As new Repetitive Loss Properties are identified within the City of Greensboro, contact all owners and inform them of the assistance available through the federal flood assistance programs, in addition to other flood protection measures.

Category: Public Information & Awareness

Hazard: Flood

Objective(s) Addressed: 3.1, 3.2, and 4.3

Background: A list of FEMA-identified repetitive loss properties is maintained and regularly updated by the Emergency Services department. Each of these properties is targeted by FEMA and the State of North Carolina for Flood Mitigation Assistance (FMA) funding, which will fund up to 75 percent of a mitigation project to eliminate future flood risk (usually through elevation or acquisition or relocation). The North Carolina Emergency Management awards FMA funds on an annual basis. Eligible property owners should be contacted every year to promote the availability of the FMA funding and to determine their level of interest in applying for the program.

Priority: High

Funding Sources: Local

Responsibility Assigned to: City of Greensboro

Target Completion Date: Ongoing

ACTION 9: Augment enforcement of the State Building Code and related City of Greensboro ordinances by encouraging wind-resistant design techniques for new residential construction during the county's permit process.

Category: Property Protection

Hazard: Hurricanes and Tropical Storms, Tornadoes, Nor'easters

Objective(s) Addressed: 2.3

Background: Although the State Building Code and local ordinances require certain building practices for wind loss reduction, experts agree that structures built to exceed high wind provisions have a much greater chance of surviving violent windstorms. Additional techniques include adding protection for windows (i.e., shutters), anchoring doorframes with multiple hinges, stiffening garage doors with additional bracing, reinforcing masonry chimneys with vertical steel, and strengthening connections between walls and the roof with hurricane straps and ties. These techniques should be promoted to building contractors and homebuyers by the county for all new residential construction, to the maximum extent possible during the building permits process.

Priority: High

Funding Sources: None identified at this time

Responsibility Assigned to: City of Greensboro code enforcement officials

Target Completion Date: Ongoing

The City of High Point Mitigation Actions

Action Item #1: Prevent encroachments, including fill, new construction, substantial improvements, and other developments within areas designated as floodways or non-encroachment areas. Consider revising Chapter 7, Article C, Flood Damage Prevention, of the High Point Development Ordinance to prevent new development within all Special Flood Hazard Areas.

Lead department(s): Engineering Services Department.

Background: Floodways and non-encroachment areas are extremely hazardous areas due to the velocity of floodwaters that have erosion potential and carry debris and potential projectiles. Within the Special Flood Hazard Areas designated as Approximate Zone A, where no Base Flood Elevation (BFE) data has been provided by FEMA, no fill, new construction, substantial improvements, or new development shall be permitted within a distance of twenty (20) feet from the top of the bank on each side of a stream, or five times the width of the stream, whichever is greater, unless certification with supporting technical data by a registered professional engineer is provided, demonstrating that such encroachments shall not result in any increase in flood levels during the 100-year storm event.

Priority: Low

Cost: Negligible. This would be accomplished as a part of normal staff activities

Action Item #2: Advertise and promote the availability of flood insurance to property owners that are located in flood hazard areas. Continue to review FEMA-identified repetitive loss properties for potential for mitigation through the federal Flood Mitigation Assistance (FMA) program or other flood protection measures. Lead department (s): Public Services Department.

Background: High Point joined the National Flood Insurance Program in 1978. FEMA uses a formula that combines the monetary cost of damage and damage frequency to determine repetitive loss status. NFIP flood insurance policies protect property owners by offering affordable rates for protecting both structures and contents.

Priority: High

Cost: Negligible. There are fewer than 10 repetitive loss properties in High Point.

Action Item #3: Continue to collect educational materials as budgeting will allow for pamphlets to educate the public on family preparedness as well as mitigation measures that are available to property owners. These pamphlets shall remain on display for the public at the following locations; the City Library, Public Services and the Fire Department / City's Office of Emergency Management. Lead Department(s) Fire Department.

Background: FEMA, the National Weather Service and the North Carolina Department of Emergency Management as well as other agencies provide to the general public informational bulletins and pamphlets to educate the general public on property protection measures at no cost to the local governments. The Fire Department has placed for public review a number of these pamphlets and brochures at various locations throughout the city.

Priority: HIGH

COST: Minimal, This would be a matter of routinely checking on the selection and quality of these materials and ordering new ones as they become available

Action Item #4: Continue to identify areas in the city subject to repetitive flooding and institute mitigation measures as funds allow. Lead department (s): Public Services Department.

Background: A \$15.4 million storm water bond was voted on and approved by the citizens of the City of High Point in 2004. Drainage and watershed studies have been completed in seven high priority areas. The seven areas were chosen for having the highest level of citizen complaints and for having storm water problem areas with a greater potential loss of life and property damage. Capital improvement projects will continue to be designed and constructed in the seven identified areas.

Priority: High

Cost: Expensive

Action Item #5: Continue to update City of High Point facilities and infrastructure that may be deemed “High Risk” facilities for various threats. As budgetary resources allow, redefine the criteria and evaluate the aid of establishment of protective measures that may be required to mitigate and respond to incidents within the high risk facilities. Lead Department(s): ALL. It is the responsibility of each city department to determine site specific threats, along with mitigative actions to be taken.

Background: An evaluation of each department is crucial to this action item. Outside expertise may be required to perform this evaluation and ensure proper planning and utilization of resources to address identified risks. This evaluation must be maintained and addressed by each department, through available planning methods and mitigative strategies.

Priority: Moderate

Cost: Difficult to estimate until the site evaluations are fully complete.

Action Item #6: Each city department should have an established system to identify potential hazards within their supervised departments. This system should provide for mitigation strategies of known hazards in the department’s planning and budget processes as needed. The list of hazard mitigation need should be periodically revised and updated. Lead Department(s): ALL

Background: Numerous city departments manage facilities that are considered vital infrastructure. This system will be maintained to ensure that departmental capabilities will not be interrupted.

Priority: Moderate

Cost: Negligible. Review cost can be accomplished as part of normal staff activities. Mitigative costs will vary, dependent upon mitigative strategies to be implemented.

Action Item #7: Inventory and evaluate the City’s emergency response activities. Identify the resources needed to accomplish specific response activities. Reviews shall include the needs of personnel, equipment and required resources for an emergency deployment. Lead Department(s): Fire and Police Departments

Background: This is done normally on a yearly basis as a major part of the budgetary preparation program. This should be extended to each Department for their specific resource needs to determine operational readiness.

Priority: Moderate

Cost: Negligible, should be conducted as normal staff activities.

Action Item #8: Update the educational pamphlet of the ICC (Increased Cost of Compliance) and how it associates with the policy holders within the City of High Point. This informational pamphlet should be distributed to the city property owners that receive substantial damage during a flood type event.

Lead Department; Fire Department and Public Services

Background: Current Flood Insurance Policy Holders may be required to bring flood-damaged structures into a state of compliance with the local building regulations under certain circumstances. Increased Cost of Compliance coverage will provide up to \$30,000 for this stated purpose. The owner may choose one of four options 1) Elevating the structure 2) Relocating the structure 3) demolishing the structure or 4) flood proofing the structure (this is primarily done to those non-residential buildings).

Priority: High

Funding: Negligible, due to this being accomplished under normal staff activities. A number of these type of activities are already on-going. Non-localized funding may be available for some of these types of activities.

Town of Jamestown Mitigation Actions

Action 1: Continue to participate in the NFIP

Responsible Department: Town Clerk

Potential Funding Sources: State and Federal funding as available

Timeframe to complete: Ongoing

Action 2: Work with the County and State to complete hazard mitigation plan updates

Responsible Department: Town Clerk

Potential Funding Sources: State and Federal funding as available; Town planning expertise

Timeframe to complete: Ongoing

Action 3: Continue to identify and document hazard occurrences and potential mitigation projects.

Responsible Department: Town Clerk

Potential Funding Sources: Town planning expertise

Timeframe to complete: Ongoing

Town of Oak Ridge Mitigation Actions

Action 1: Continue to participate in the NFIP

Responsible Department: Town Clerk

Potential Funding Sources: State and Federal funding as available

Timeframe to complete: Ongoing

Action 2: Work with the County and State to complete hazard mitigation plan updates

Responsible Department: Town Clerk

Potential Funding Sources: State and Federal funding as available; Town planning expertise

Timeframe to complete: Ongoing

Action 3: Continue to identify and document hazard occurrences and potential mitigation projects.

Responsible Department: Town Clerk

Potential Funding Sources: Town planning expertise

Timeframe to complete: Ongoing

Town of Pleasant Garden Mitigation Actions

Action 1: Continue to participate in the NFIP

Responsible Department: Town Clerk

Potential Funding Sources: State and Federal funding as available

Timeframe to complete: Ongoing

Action 2: Work with the County and State to complete hazard mitigation plan updates

Responsible Department: Town Clerk

Potential Funding Sources: State and Federal funding as available; Town planning expertise

Timeframe to complete: Ongoing

Action 3: Continue to identify and document hazard occurrences and potential mitigation projects.

Responsible Department: Town Clerk

Potential Funding Sources: Town planning expertise

Timeframe to complete: Ongoing

Town of Sedalia Mitigation Actions

Action 1: Continue to participate in the NFIP based of our Stormwater Management Ordinance and the Watershed Protection Ordinance

Responsible Department: Town Clerk

Potential Funding Sources: State and Federal funding as available

Timeframe to complete: Ongoing

Action 2: Work with the County and State to complete hazard mitigation plan updates

Responsible Department: Town Clerk

Potential Funding Sources: State and Federal funding as available; Town planning expertise

Timeframe to complete: Ongoing

Action 3: Continue to identify and document hazard occurrences and potential mitigation projects.

Responsible Department: Town Clerk

Potential Funding Sources: Town planning expertise

Timeframe to complete: Ongoing

Town of Stokesdale Mitigation Actions

Action 1: Continue to participate in the NFIP

Responsible Department: Town Clerk

Potential Funding Sources: State and Federal funding as available

Timeframe to complete: Ongoing

Action 2: Work with the County and State to complete hazard mitigation plan updates
Responsible Department: Town Clerk
Potential Funding Sources: State and Federal funding as available; Town planning expertise
Timeframe to complete: Ongoing

Action 3: Continue to identify and document hazard occurrences and potential mitigation projects.
Responsible Department: Town Clerk
Potential Funding Sources: Town planning expertise
Timeframe to complete: Ongoing

Town of Summerfield Mitigation Actions

Action 1: Continue to participate in the NFIP
Responsible Department: Town Planner
Potential Funding Sources: State and Federal funding as available
Timeframe to complete: Ongoing

Action 2: Work with the County and State to complete hazard mitigation plan updates
Responsible Department: Town Manager
Potential Funding Sources: State and Federal funding as available; Town planning expertise
Timeframe to complete: Ongoing

Action 3: Continue to identify and document hazard occurrences and potential mitigation projects.
Responsible Department: Town Planner
Potential Funding Sources: Town planning expertise
Timeframe to complete: Ongoing

Town of Whitsett Mitigation Actions

Action 1: Continue to participate in the NFIP
Responsible Department: Town Clerk
Potential Funding Sources: State and Federal funding as available
Timeframe to complete: Ongoing

Action 2: Work with the County and State to complete hazard mitigation plan updates
Responsible Department: Town Clerk
Potential Funding Sources: State and Federal funding as available; Town planning expertise
Timeframe to complete: Ongoing

Action 3: Continue to identify and document hazard occurrences and potential mitigation projects.
Responsible Department: Town Clerk
Potential Funding Sources: Town planning expertise
Timeframe to complete: Ongoing

VII. Implementation

A. Process

The Guilford County Multi-Jurisdictional Hazard Mitigation Plan will be implemented through the delegation of assignments by the Guilford County Manager, and as specified within this plan. In this plan, 10 mitigation actions are listed and assigned specific implementation measures. Also included for each action is the party responsible for seeing that it is accomplished. The Guilford County Manager, in conjunction with Guilford County Emergency Services, has the responsibility to see that the actions within the plan are completed in the timeframes outlined. Guilford County Emergency Services will annually communicate with each responsible party and will ensure that the goals are being worked toward, as applicable. This will be done through an annual meeting that will be held in the first quarter of every year.

The Guilford County Multi-Jurisdictional Hazard Mitigation Committee, and its members will also have jurisdiction over the plan, and they will monitor progress and potential funding sources on an annual basis to ensure that all possible avenues for completing the mitigation actions are explored. The completion of each proposed mitigation action has been determined feasible within the timeframe allowed, and specific procedures for regular monitoring and reporting progress on the proposed mitigation actions are provided in Section V: Evaluation and Enhancement.

B. Funding Sources

Although all mitigation techniques will likely save money by avoiding losses, many projects are costly to implement. Guilford County and its municipalities will continue to seek outside funding assistance for mitigation projects in both the pre- and post-disaster environments. This portion of the plan identifies the primary Federal and State programs that Guilford County and its municipalities will consider, and also briefly discusses local and non-governmental funding sources.

FEDERAL

The North Carolina Division of Emergency Management (NCEM) recently identified over 300 federal “disaster-related” funding sources. This listing includes mostly federal government grant programs that do not necessarily target hazard mitigation projects, but are certainly related and should be considered as good resources for potential mitigation funding. The listing of these funding sources will continue to be used as a reference but was not included within this plan due to space limitations.

The following federal grant programs have been identified as funding sources which specifically target hazard mitigation projects:

Title: Pre-Disaster Mitigation Program

Agency: Federal Emergency Management Agency

Through the Disaster Mitigation Act of 2000, Congress approved the creation of a national program to provide a funding mechanism that is not dependent on a Presidential disaster

declaration. The Pre-Disaster Mitigation (PDM) Program provides funding to states and communities for cost-effective hazard mitigation activities that complement a comprehensive mitigation program, and reduce injuries, loss of life, and damage and destruction of property. The funding is based upon a 75 percent Federal share, 25 percent non-Federal share. The non-Federal match can be fully in-kind or cash, or a combination. Special accommodations will be made for “small and impoverished communities”, who will be eligible for 90% Federal share, 10% non-Federal. FEMA provides PDM grants to states that, in turn, can provide sub-grants to local governments for accomplishing eligible mitigation activities.

Title: Flood Mitigation Assistance Program

Agency: Federal Emergency Management Agency

FEMA's Flood Mitigation Assistance program (FMA) provides funding to assist states and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the National Flood Insurance Program (NFIP). FMA was created as part of the National Flood Insurance Reform Act of 1994 (42 U.S.C. 4101) with the goal of reducing or eliminating claims under the NFIP. FMA is a pre-disaster grant program, and is made available to states on an annual basis. This funding is available for mitigation planning and implementation of mitigation measures only, and is based upon a 75 percent Federal share, 25 percent non-Federal share. States administer the FMA program and are responsible for selecting projects for funding from the applicants submitted by all communities within the state. The state then forwards selected applications to FEMA for an eligibility determination. Although individuals cannot apply directly for FMA funds, their local government may submit an application on their behalf.

Title: Hazard Mitigation Grant Program

Agency: Federal Emergency Management Agency

The Hazard Mitigation Grant Program (HMGP) was created in November 1988 through Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act. The HMGP assists states and local communities in implementing long-term mitigation measures following a Presidential disaster declaration. To meet these objectives, FEMA can fund 75 percent of the eligible costs of each project. The state or local cost-share match does not need to be cash; in kind services or materials may also be used. The HMGP can be used to fund projects to protect either public or private property, so long as the projects in question fit within the state and local government's overall mitigation strategy for the disaster area, and comply with program guidelines. Examples of projects that may be funded include the acquisition or relocation of structures from hazard-prone areas, the retrofitting of existing structures to protect them from future damages; and the development of state or local standards designed to protect buildings from future damages. Eligibility for funding under the HMGP is limited to state and local governments, certain private nonprofit organizations or institutions that serve a public function, Indian tribes and authorized tribal organizations. These organizations must apply for HMGP project funding on behalf of their citizens. In turn, applicants must work through their state, since the state is responsible for setting priorities for funding and administering the program.

Title: Public Assistance (Infrastructure) Program, Section 406

Agency: Federal Emergency Management Agency

FEMA's Public Assistance Program, through Section 406 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, provides funding to local governments following a Presidential disaster declaration for mitigation measures in conjunction with the repair of damaged public facilities and infrastructure. The mitigation measures must be related to eligible disaster-related damages and must directly reduce the potential of future, similar disaster damages to the eligible facility. These opportunities usually present themselves during the repair/replacement efforts. Proposed projects must be approved by FEMA prior to funding. They will be evaluated for cost effectiveness, technical feasibility, and compliance with statutory, regulatory and executive order requirements. In addition, the evaluation must ensure that the mitigation measures do not negatively impact a facility's operation or risk from another hazard.

Title: Small Business Administration Disaster Assistance Program**Agency: U.S. Small Business Administration**

The Small Business Administration (SBA) Disaster Assistance Program provides low-interest loans to individuals and businesses following a Presidential disaster declaration. For additional information on program requirements, please visit: <http://www.sba.gov/services/disasterassistance>.

Title: Community Development Block Grants**Agency: U.S. Department of Housing and Urban Development**

The Community Development Block Grant (CDBG) program provides grants to local governments for community and economic development projects that primarily benefit low- and moderate-income people. The CDBG program also provides grants for post-disaster hazard mitigation and recovery following a Presidential disaster declaration. Funds can be used for activities such as acquisition, rehabilitation or reconstruction of damaged properties and facilities and for the redevelopment of disaster areas.

STATE

The following State grant programs have been identified as the primary funding sources to support hazard mitigation projects within the state of North Carolina:

Title: Water and Sewer Grant Programs**Agency: North Carolina Rural Economic Development Center, Inc.**

The Rural Center administers programs to help rural communities develop the water and sewer systems they need to support local economic growth and ensure a reliable supply of clean water. The programs are made possible through appropriations from the North Carolina General Assembly and through proceeds from the Clean Water Bonds, approved by the voters of North Carolina in November 1998.

Title: Clean Water Management Trust Fund**Agency: Board of Trustees, Clean Water Management Trust Fund**

Created in 1996, the Clean Water Management Trust Fund (CWMTF) makes grants to local governments, state agencies and conservation non-profits to help finance projects that address water pollution problems. Specifically, CWMTF will fund projects that (1) enhance or restore

degraded waters, (2) protect unpolluted waters, and/or (3) contribute toward a network of riparian buffers and greenways for environmental, educational, and recreational benefits. At the end of each fiscal year, 6.5% of the unreserved credit balance in North Carolina's General Fund (or a minimum of \$30 million) will go into the CWMTF. Revenues from the CWMTF will then be allocated in the form of grants to local governments, state agencies and conservation non-profits to help finance projects that specifically address water pollution problems. The 18 member, independent, CWMTF Board of Trustees has full responsibility over the allocation of moneys from the Fund.

Title: Water Resources Development Grant Program

**Agency: North Carolina Department of Environment and Natural Resources,
Division of Water Resources**

Applications for grants may be made for the non-federal share of water resources development projects for the specific purposes in amounts not to exceed the percentage of the non-federal costs indicated.

LOCAL

Local governments depend upon local property taxes as their primary source of revenue. These taxes are typically used to finance services that must be available and delivered on a routine and regular basis to the general public. If local budgets allow, these funds may be used for other purposes in the general public interest. These funds are often used to match federal or state grant programs when required for large-scale projects.

NON-GOVERNMENTAL

Another potential source of revenue for implementing local mitigation projects are monetary contributions from non-governmental organizations, such as private sector companies, churches, charities, community relief funds, the Red Cross, hospitals, Land Trusts and other non-profit organizations.

VIII. Evaluation and Enhancement

Monitoring and Reporting

Periodic monitoring and reporting of the plan are required to ensure that the goals and objectives for Guilford County are kept current and that local mitigation efforts are being carried out. The plan has therefore been designed to be user-friendly in terms of monitoring implementation and preparing regular progress reports. The ultimate responsibility for all monitoring and reporting actions will fall to the Guilford County Emergency Services to complete the actions required. Thus far, monitoring and reporting has helped to keep a gauge on the progress being made on the mitigation actions. This has helped the county and municipalities to realize that the most substantial obstacle to accomplishing mitigation actions is the lack of funding provided by local budgets. This has helped the county, cities and towns to realize that they need to seek out traditional and creative funding sources.

Revisions and Updates

Periodic revisions and updates of the plan are required to ensure that the goals and objectives for Guilford County and its municipalities are kept current. More importantly, revisions may be necessary to ensure that the plan is in full compliance with federal regulations and state statutes. This portion of the plan outlines the procedures for completing such revisions and updates.

Five Year Plan Review

The three background studies (Hazard Identification and Analysis, Vulnerability Assessment, and Capabilities Assessment) should be reviewed every 5 years or as needed to determine if there have been any significant changes in Guilford County that would affect the Mitigation Plan. Increased development, increased exposure to certain hazards, the development of new mitigation capabilities or techniques, and changes to Federal or State legislation are examples of changes that may affect the condition of the plan.

Following a disaster declaration, the plan will need to be revised to reflect lessons learned or to address specific circumstances arising out of the disaster. The results of this five year review should become summarized in a report prepared for this Mitigation Plan under the direction of the Committee. This report will include an evaluation of the effectiveness and appropriateness of the Plan, and will recommend, as appropriate, any required changes or amendments to the Plan. If the County Board of Commissioners determines that the recommendations warrant modification to the Plan, the Board may either initiate a Plan amendment as described below or, if conditions justify, may direct the County Manager to undertake a complete update of the Plan.

After the Board of Commissioners review and approved the plan, it will be submitted to the State Hazard Mitigation Officer for NCEM and FEMA for review and approval.

Plan Amendments

An amendment to the plan should be initiated only by the Board of Commissioners, either at its own initiative or upon the recommendation of the Guilford County Multi-Jurisdictional Hazard Mitigation Committee or the County Emergency Management Coordinator. Upon initiation of an amendment to the plan, the Guilford County Multi-Jurisdictional Hazard Mitigation Committee will forward information on the proposed amendment to all interested parties including, but not

limited to, all affected County departments, residents and businesses. Information will also be forwarded to the North Carolina Division of Emergency Management. This information will be sent out in order to seek input on the proposed plan amendment for not less than a 45 day review and comment period. At the end of the comment period, the proposed amendment and all review comments will be forwarded to the Guilford County Multi-Jurisdictional Hazard Mitigation Committee for consideration. If no comments are received from the reviewing parties within the specified review period, this will be noted. The Guilford County Multi-Jurisdictional Hazard Mitigation Committee will review the proposed amendment along with the comments received from other parties, and submit a recommendation to the Board of County Commissioners within 60 days.

In determining whether to recommend approval or denial of a plan amendment request, the following factors will be considered:

1. There are errors or omissions made in the identification of issues or needs during the preparation of the Plan;
2. New issues or needs have been identified which were not adequately addressed in the Plan;
3. There has been a change in information, data, or assumptions upon which the plan was based.

Upon receiving the recommendation of the County Manager or his/her designee, the Board of Commissioners will hold a public hearing. The Board of Commissioners will review the recommendation (including the factors listed above) and any oral or written comments received at the public hearing. Following that review, the Board of Commissioners will take one of the following actions:

1. Adopt the proposed amendment as presented.
2. Adopt the proposed amendment with modifications.
3. Refer the amendments request back to the Guilford County Multi-Jurisdictional Hazard Mitigation Committee for further consideration.
4. Defer the amendment request for further consideration and/or hearing.

Incorporation Into Existing Planning Documents

The Guilford County Hazard Mitigation Committee intends to make available to all of Guilford County and its municipalities a process by which the requirements of this hazard mitigation plan will be incorporated into other plans. During the planning process for new and updated local planning documents, such as a comprehensive plan, capitol improvements plan or emergency management plan to name a few examples, the local planner will provide a copy of the hazard mitigation plan to each respective advisory committee member. The local planner will advise the advisory committee members to ensure that all goals and strategies of new and updated local planning documents are consistent with the hazard mitigation plan and will not increase hazards in the jurisdictions.

Continued Public Involvement

For the past five years, the county and each municipality, has kept a copy of the mitigation plan for viewing at the local offices. The plan has also been available on the Guilford County Emergency Services website. There has not been any comment on the plan in the last five years, and the public has not offered any suggestions for changes to the plan.

A copy of the plan will continue to be available for viewing during regular business hours at the Guilford County Office of Emergency Management, and the Municipal City/Town Halls. Public comments will be encouraged at all sites. Due to security concerns, all plans have been removed from the county website unless they are up for review. The county will publish a notice in the local newspapers notifying the public of the location of copies of the plan and requesting input on the plan. The article will be published in conjunction with the annual monitoring.

Appendix A – 2009 Guilford County Hazard Mitigation Committee Meeting Agendas, Minutes and Sign-In Sheets

**Guilford County
Multi-Jurisdictional Hazard Mitigation Plan
2010 Update Meeting Agenda**

September, 2009 at 2:00pm
Guilford County Emergency Operations Center

- 1) Introductions and Welcome
- 2) Project Overview from Emergency Management
- 3) Jurisdictional Updates
 - a. Guilford County – Unincorporated Areas
 - b. City of Greensboro
 - c. City of High Point
 - d. Town of Jamestown
 - e. Town of Oak Ridge
 - f. Town of Pleasant Garden
 - g. Town of Sedalia
 - h. Town of Stokesdale
 - i. Town of Summerfield
 - j. Town of Whitsett
 - k. Town of Gibsonville
- 4) Estimated Project Timelines
- 5) NCEM Comments / Concerns
- 6) Open Discussion / Questions
- 7) Next Actions / Meeting Dates

Guilford County Multi-Jurisdictional Hazard Mitigation Plan Meeting
September 10, 2009

Need 2 public interaction meetings before approval.

After submittal of plan, FEMA sends letter approving adoption of the plan.

We need an approval meeting before taking plan to commissioners for approval.

Need to get draft of plan in place by end of December, 2009.

Draft of plan update to NC Emergency Management by February.

Plan update to FEMA by June, 2010.

Get copy of plan to municipalities.

- Mitigation strategies and actions to municipalities
- Matrix for each community
- For each strategy, there needs to be an action
- Change 2005 to 2010 in plan

Use strike through font. Make additions and changes in color. (red, blue, etc.)

FEMA wants to see update 6 months before expiration date.

Use checklist (approx. 25 pages)

Important:

Location in plan where changes are made. Where did you put the new information?

Element – questions you are addressing in the plan.

- Planning process
- Risk assessment
- Goals and objectives
- Mitigation strategies
- Planned maintenance section
- Adoption

Each element must be addressed.

If plan is not updated, you will not qualify for FEMA money in the case of an emergency.

Next meeting: Thursday, October 1, 2009 at 2:00 PM

Guilford County
Multi-Jurisdictional Hazard Mitigation Plan
2010 Update Meeting Agenda

October 1st, 2009 at 2:00pm
Guilford County Emergency Operations Center

- 1) Introductions and Welcome
- 2) Project Overview from Emergency Management
- 3) Jurisdictional Updates
 - a. Guilford County – Unincorporated Areas
 - b. City of Greensboro
 - c. City of High Point
 - d. Town of Jamestown
 - e. Town of Oak Ridge
 - f. Town of Pleasant Garden
 - g. Town of Sedalia
 - h. Town of Stokesdale
 - i. Town of Summerfield
 - j. Town of Whitsett
 - k. Town of Gibsonville
- 4) Estimated Project Timelines
- 5) NCEM Comments / Concerns
- 6) Open Discussion / Questions
- 7) Next Actions / Meeting Dates

Guilford County
Multi-Jurisdictional Hazard Mitigation Plan
2010 Update Meeting Minutes

October 1st, 2009 at 2:00pm – 3:00pm
Guilford County Emergency Operations Center

1) Introductions and Welcome

- a. In Attendance: *Steve Marks, Don Campbell, Mike Wright (Guilford County Emergency Services), Jim Robinson and Mike Borchers (City of Greensboro), Brandon Parker (Gibsonville), Carolyn Joyner (Stokesdale), Martha Wolfe (Jamestown), Robert Jones (Sedalia), Stephen Lovette (High Point).*
- b. Jurisdictions Not Represented: *Guilford County Planning, Town of Oak Ridge, Town of Pleasant Garden, Town of Summerfield, Town of Whitsett*

2) Project Overview from Emergency Management

- a. *Guilford County Emergency Management is working on the Hazard and Vulnerability Analysis sections of the plan. We are currently coordinating additional staffing to assist with the process of updating the HVA.*
- b. *Guilford County EM is currently going through the process to bring in a contractor / consultant to assist with the compilation of the new 2010 plan. Our goal is to create a professional plan that is easy to update in 2015. Earliest start date is late October and they will come in and help coordinate the updates and do the heavy lifting on the document. This will not relieve each jurisdiction of having to update their objectives. Guilford County Emergency Management is planning to fund this project through current planning grants.*

3) Jurisdictional Updates

- a. Guilford County – Unincorporated Areas
 - i. *Not Represented*
- b. City of Greensboro
 - i. *Jim Robinson will be the acting Emergency Manager for the City of Greensboro and it getting up to speed with the Mitigation Project. Mike Borchers is currently reviewing the plan and will have their updates for the November meeting.*
- c. City of High Point
 - i. *Stephen Lovette attended for Barry Tilley and is new to the Mitigation project. He will coordinate with Jim Gwyn to complete the City of High Point's updates.*
- d. Town of Jamestown
 - i. *Community Profile and critical facility list has been updated and submitted to Steve with Emergency Management.*
- e. Town of Oak Ridge
 - i. *Emergency Management will be coordinating with the new Town of Oak Ridge Town Clerk to get them up to speed with the project and invited to the next meeting.*

- f. Town of Pleasant Garden
 - i. *Sandy was unable to attend due to an illness. The Town of Pleasant Garden has sent in their updates to Steve with Emergency Management.*
 - g. Town of Sedalia
 - i. *Cam Dungee was unable to attend and had Robert Jones attend in her place. Sedalia has provided Emergency Management with their updates.*
 - h. Town of Stokesdale
 - i. *They will have very few updates to the information currently in the plan and will send any updates to Steve.*
 - i. Town of Summerfield
 - i. *Not Represented.*
 - j. Town of Whitsett
 - i. *Not Represented.*
 - k. Town of Gibsonville
 - i. *Updates have been completed and will be sent to Steve Marks with Emergency Management early next week.*
- 4) Estimated Project Timelines
- a. *The current plan expires in June of 2010. We are required to have the plan to FEMA 45 days prior to expiration and NCEM must have a copy of the plan 45 days prior to it being sent to FEMA. Before the plan can be submitted to NCEM, Emergency Management will coordinate a public meeting for review and comments.*
 - b. *The Plan will have to be approved by all of our elected officials. We anticipate having this completed once the plans are approved by FEMA. It was discussed that we will need 2 – 3 months in some cases to get the plan on the agendas for the boards and we will take this into consideration during our timeline planning.*
- 5) NCEM Comments / Concerns
- a. *NCEM was not in attendance.*
- 6) Open Discussion / Questions
- a. *None*
- 7) Next Actions / Meeting Dates
- a. *Our next meeting will take place on November 5th, 2009 at 2:00pm in the Guilford County Emergency Operations Center.*

Guilford County LEPC Meeting Agenda
Thursday, January 14, 2010
9:00 am to 11 am

Host: Guilford County Emergency Services
Emergency Services Training Room
1002 Meadowood Rd.
Greensboro, NC 27409

Welcome and Introductions

Review and Approval of November Minutes

Treasurer Report

Lessons Learned (Results from investigations, inspections, internal or external certifications, awards, commendations, recognition, etc.)

NOTE: In order to preserve time for the main topic of the meeting, subcommittee reports will be done as necessary.

Sub-Committee Reports:

- TERG
- Regulatory Review Committee
- Citizen Corps Committee
- By-Laws Committee
- Web Page Committee
- Program Committee
- Historical Committee
- Executive Committee
- Guilford County LEPC Community Hazardous Materials Contingency Guide Committee

Fire and Emergency Services Reports

- High Point Fire
- Greensboro Fire
- Guilford County Fire
- Law Enforcement – City and County
- Greensboro Emergency Management
- Guilford County Environmental Health
- Guilford County Emergency Management
- North Carolina Emergency Management

Board of County Commissioners

Any City Council Members or Town Representatives

VOTING ISSUES: by-laws and hazardous materials plan

Training Topic: Hazard Mitigation Plan overview, Don Campbell, Guilford County Emergency Management

Next Meeting: Guilford County Emergency Services, February 11, 2010

Appendix B – 2004 and 2009 Public Participation Surveys and 2009 Survey Results

2004 PUBLIC PARTICIPATION SURVEY FOR HAZARD MITIGATION PLANNING

We need your help!

Our community is currently engaged in a planning process to become less vulnerable to disasters caused by natural hazards, and your participation is important to us!

The City of Greensboro and Guilford County are working together to prepare a *Multi-jurisdictional Hazard Mitigation Plan*. The purpose of the Multi-jurisdictional Plan is to identify and assess our community's natural hazard risks (such as hurricanes, tornadoes, flooding, winter storms, drought and wildfires) and determine how to best minimize or manage those risks. Upon completion, the Plan will be presented to each local governing body for adoption and submitted to the North Carolina Division of Emergency Management and Federal Emergency Management Agency for review and approval.

This survey questionnaire provides an opportunity for you to share your opinions and concerns, and participate in the mitigation planning process. The information you provide will help us better understand your hazard concerns and can lead to mitigation activities that should help lessen the impact of future hazard events.

Please help us by completing this survey and returning it to:

Melissa Beaver
City of Greensboro
Stormwater Management Division
201 N. Greene St.
Greensboro, NC 27402-3136

Ronald D. Campbell
Guilford County
Emergency Management
1002 Meadowood St.
Greensboro, NC 27409

Surveys can also be faxed to: (336) 412-6305 or (336) 641-5748.

1. What city/town do you live in? _____

2. Have you ever experienced or been impacted by a disaster?

☐ Yes (please explain): _____
☐ No

3. How concerned are you about the possibility of our community being impacted by a disaster?

☐ Extremely concerned
☐ Somewhat concerned
☐ Not concerned

4. Please select the one hazard you think is the *highest threat* to your neighborhood:

☐ Drought

- ☐ Earthquake
- ☐ Erosion
- ☐ Extreme Heat
- ☐ Flood
- ☐ Hail
- ☐ Hurricane and Tropical Storm
- ☐ Land Subsidence
- ☐ Landslide
- ☐ Lightning
- ☐ Severe Thunderstorm
- ☐ Tornado
- ☐ Winter Storm
- ☐ Wildfire
- ☐ Other (please explain): _____

5. Please select the one hazard you think is the *second highest threat* to your neighborhood:

- ☐ Drought
- ☐ Earthquake
- ☐ Erosion
- ☐ Extreme Heat
- ☐ Flood
- ☐ Hail
- ☐ Hurricane and Tropical Storm
- ☐ Land Subsidence
- ☐ Landslide
- ☐ Lightning
- ☐ Severe Thunderstorm
- ☐ Tornado
- ☐ Winter Storm
- ☐ Wildfire
- ☐ Other (please explain): _____

6. Is there another natural hazard not listed above that you think is a wide-scale threat to your neighborhood?

- ☐ Yes (please explain): _____
- ☐ No

7. Is your home located in a floodplain?

- ☐ Yes
- ☐ No
- ☐ I don't know

8. Do you have flood insurance?

- ☐ Yes
- ☐ No
- ☐ I don't know

a. If “No”, why not?

- ☐ Not located in floodplain
- ☐ Too expensive
- ☐ Not necessary because it never floods
- ☐ Not necessary because I'm elevated or otherwise protected
- ☐ Never really considered it
- ☐ Other (please explain): _____

9. Have you taken any actions to make your home or neighborhood more resistant to natural hazards?

- ☐ Yes
- ☐ No

b. If “Yes”, please explain:

10. Are you interested in making your home or neighborhood more resistant to natural hazards?

- ☐ Yes
- ☐ No

11. What is the most effective way for you to receive information about how to make your home and neighborhood more resistant to natural hazards?

- ☐ Newspaper
- ☐ Television
- ☐ Radio
- ☐ Internet
- ☐ Mail
- ☐ Public workshops/meetings
- ☐ Other (please explain): _____

12. In your opinion, what are some steps your local government could take to reduce or eliminate the risk of future natural hazard damages in your neighborhood?

13. Are there any other issues regarding the reduction of risk and loss associated with natural hazards or disasters in the community that you think are important?

14. A number of community-wide activities can reduce our risk from natural hazards. In general, these activities fall into one of the following six broad categories. Please tell us how important you think each one is for your community to consider pursuing.

Category	Very Important	Somewhat Important	Not Important
<u>1. Prevention</u> Administrative or regulatory actions that influence the way land is developed and buildings are built. Examples include planning and zoning, building codes, open space preservation, and floodplain regulations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>2. Property Protection</u> Actions that involve the modification of existing buildings to protect them from a hazard or removal from the hazard area. Examples include acquisition, relocation, elevation, structural retrofits, and storm shutters.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>3. Natural Resource Protection</u> Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. Examples include: floodplain protection, habitat preservation, slope stabilization, riparian buffers, and forest management.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>4. Structural Projects</u> Actions intended to lessen the impact of a hazard by modifying the natural progression of the hazard. Examples include dams, levees, seawalls, detention/retention basins, channel modification, retaining walls and storm sewers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>5. Emergency Services</u> Actions that protect people and property during and immediately after a hazard event. Examples include warning systems, evacuation planning, emergency response training, and protection of critical emergency facilities or systems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>6. Public Education and Awareness</u> Actions to inform citizens about hazards and the techniques they can use to protect themselves and their property. Examples include outreach projects, school education programs, library materials and demonstration events.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

THANK YOU FOR YOUR PARTICIPATION!

2009 PUBLIC PARTICIPATION SURVEY FOR HAZARD MITIGATION PLANNING

Our community is currently engaged in a planning process to become less vulnerable to disasters caused by natural hazards, and your participation is important to us.

This survey questionnaire provides an opportunity for you to share your opinions and concerns, and participate in the mitigation planning process. The information you provide will help us better understand your hazard concerns and can lead to mitigation activities that should help lessen the impact of future hazard events.

Please help us by completing this survey and returning it to:

Ronald D. Campbell
Guilford County
Emergency Management
1002 Meadowood St.
Greensboro, NC 27409

Surveys can also be faxed to: (336) 641-5748 or emailed to Don.Campbell@guilford-es.com

1. **What city/town do you live in?** _____
2. **Have you ever experienced or been impacted by a disaster?**
☐ Yes (please explain): _____
 . No
3. **How concerned are you about the possibility of our community being impacted by a disaster?**
 . Extremely concerned
 . Somewhat concerned
 . Not concerned
4. **Please select the one hazard you think is the *highest threat* to your neighborhood:**
 . Drought
 . Earthquake
 . Erosion
 . Extreme Heat
 . Flood
 . Hail
 . Hurricane and Tropical Storm
 . Land Subsidence
 . Landslide
 . Lightning
 . Severe Thunderstorm
 . Tornado
 . Winter Storm

- . Wildfire
- . Other (please explain): _____

5. Is there another natural hazard not listed above that you think is a wide-scale threat to your neighborhood?

- . Yes (please explain): _____
- . No

6. Is your home located in a floodplain?

- . Yes
- . No
- . I don't know

7. Do you have flood insurance?


- . Yes
- . No
- . I don't know

8. In your opinion, what are some steps your local government could take to reduce or eliminate the risk of future natural hazard damages in your neighborhood?

9. Are there any other issues regarding the reduction of risk and loss associated with natural hazards or disasters in the community that you think are important?

THANK YOU FOR YOUR PARTICIPATION!

2009 Public Participation Survey Results


SurveyMonkey

Logged in as "eoc@mosescone.com"
 [Log Off](#)

[Home](#)
[Create Survey](#)
[My Surveys](#)
[Address Book](#)
[My Account](#)
[Need Help?](#)

survey title:
 Guilford County PPS for 2010 Mitigation Plan
[Edit Title](#)

[design survey](#)
[collect responses](#)
[analyze results](#)

[View Summary](#)

current report: [Default Report](#) [Add Report](#)


[Browse Responses](#)

[Filter Responses](#)

[Crosstab Responses](#)

[Download Responses](#)

[Share Responses](#)


Response Summary

Total Started Survey: 18
 Total Completed Survey: 18 (100%)

Page: Guilford County Public Participation Survey

1. What City or Town do you live in?
 [Create Chart](#)
[Download](#)

	Response Percent	Response Count
Guilford County (Unincorporated) <input type="checkbox"/>	5.6%	1
City of Greensboro <input type="text"/>	50.0%	9
City of High Point <input type="text"/>	16.7%	3
Stokesdale	0.0%	0
Summerfield	0.0%	0
Oak Ridge	0.0%	0
Jamestown <input type="checkbox"/>	11.1%	2
Pleasant Garden <input type="checkbox"/>	5.6%	1
Whitsett	0.0%	0
Sedalia	0.0%	0
Gibsonville <input type="checkbox"/>	11.1%	2
<i>answered question</i>		18
<i>skipped question</i>		0

2. Have you ever experienced or been impacted by a disaster?
 [Create Chart](#)
[Download](#)

	Response Percent	Response Count
No <input type="text"/>	66.7%	12


 Show replies	Yes (please specify) <input type="text"/>	33.3%	6
		<i>answered question</i>	18
		<i>skipped question</i>	0

3. How concerned are you about the possibility of our community being impacted by a disaster?		Create Chart	Download
		Response Percent	Response Count
Extremely concerned	<input type="text"/>	16.7%	3
Somewhat concerned	<input type="text"/>	77.8%	14
Not concerned	<input type="text"/>	5.6%	1
		<i>answered question</i>	18
		<i>skipped question</i>	0

4. Please select the one hazard you think is the highest threat to your neighborhood:		Create Chart	Download
		Response Percent	Response Count
Drought		0.0%	0
Earthquake	<input type="text"/>	11.1%	2
Erosion		0.0%	0
Extreme Heat		0.0%	0
Flood	<input type="text"/>	5.6%	1
Hail		0.0%	0
Hurricane and Tropical Storm		0.0%	0
Land Subsidence		0.0%	0
Landslide		0.0%	0
Lightning	<input type="text"/>	5.6%	1
Severe Thunderstorm	<input type="text"/>	27.8%	5
Tornado	<input type="text"/>	22.2%	4
Winter Storm	<input type="text"/>	27.8%	5
Wildfire		0.0%	0

<i>answered question</i>	18
<i>skipped question</i>	0

5. Is there another natural hazard not listed in the previous question that you think is a wide-scale threat to your neighborhood? [Create Chart](#) [Download](#)

		Response Percent	Response Count
No	<input type="text"/>	88.9%	16
 Show replies	Yes (please specify) <input type="text"/>	11.1%	2
<i>answered question</i>			18
<i>skipped question</i>			0

6. Is your home located in a floodplain? [Create Chart](#) [Download](#)


		Response Percent	Response Count
No	<input type="text"/>	72.2%	13
Yes	<input type="text"/>	5.6%	1
I Don't Know	<input type="text"/>	22.2%	4
<i>answered question</i>			18
<i>skipped question</i>			0


7. Do you have flood insurance? [Create Chart](#) [Download](#)

		Response Percent	Response Count
Yes	<input type="text"/>	16.7%	3
No	<input type="text"/>	83.3%	15
I don't know		0.0%	0
<i>answered question</i>			18
<i>skipped question</i>			0

8. In your opinion, what are some steps your local government could take to reduce or eliminate the risk of future natural hazard damages in your neighborhood? [Download](#)

Response

	Count
 Show replies	9
<i>answered question</i>	9
<i>skipped question</i>	9

<p>9. 9. Are there any other issues regarding the reduction of risk and loss associated with natural hazards or disasters in the community that you think are important?</p> <p>Download</p>	Response Count
 Show replies	7
<i>answered question</i>	7
<i>skipped question</i>	11

In your opinion, what are some steps your local government could take to reduce or eliminate the risk of future natural hazard damages in your neighborhood?	
	Response Count
	9
<i>answered question</i>	9
<i>skipped question</i>	9

Response Text		
1	Get powerlines buried in new developments, and work at getting that done retroactively, if possible. could utilize sidewalk construction or renovation to bury overhead lines	Nov 14, 2009 7:38 PM
2	Educating the public on prevention measures and preparedness efforts.	Nov 19, 2009 2:56 PM
3	Keep trees/limbs trimmed away from power lines	Dec 1, 2009 9:51 PM
4	Notify home owners of trees that may need to be trimmed or removed.	Dec 11, 2009 1:42 PM
5	Keep drains clear	Dec 11, 2009 1:42 PM
6	None	Dec 11, 2009 1:42 PM
7	Ensure that the stormwater system is upgraded so it has a higher capacity to avoid flooding. Work with utilities to put lines underground (perhaps offer incentives or easements)	Dec 11, 2009 1:44 PM
8	Put power lines underground, pick up fallen leaves/other debris	Dec 11, 2009 1:44 PM
9	Continue sewer and storm water upgrades in Latham Park. Some homes there are very flood prone.	Dec 11, 2009 1:45 PM

9. Are there any other issues regarding the reduction of risk and loss associated with natural hazards or disasters in the community that you think are important?	
	Response Count
	7
<i>answered question</i>	7
<i>skipped question</i>	11

Response Text		
1	Keeping overhead lines clear of overhanging branches and nearby pine trees.	Nov 14, 2009 7:38 PM
2	Educating and talking with populations that don't speak English about possible hazards, preparations they can make, and what they should do if something were to happen in our community.	Nov 25, 2009 6:12 PM
3	preventative education on how to make one's home/property safer regarding specific hazards or disasters	Dec 1, 2009 9:51 PM
4	none	Dec 11, 2009 1:42 PM
5	No	Dec 11, 2009 1:42 PM
6	No	Dec 11, 2009 1:44 PM
7	Classes in winter weather driving.	Dec 11, 2009 1:45 PM

Appendix C – Resolution for Adoption of Plan

Guilford County Resolution Text:

WHEREAS, the North Carolina General Assembly passed Senate Bill 300 “An Act to Amend the Laws Regarding Emergency Management as Recommended by the Legislative Disaster Response Commission” in June of 2001 that among other provisions requires local governments to have a hazard mitigation plan approved prior to August 1, 2002 in order to received state public assistance funds;

WHEREAS, in October of 2000 the President of the United States signed into law the “Disaster Mitigation Act of 2000” (PL 106-390) to amend the “Robert T. Stafford Disaster Relief and Emergency Act of 1988” which among other provisions requires local governments to adopt a mitigation plan in order to be eligible for hazard mitigation funding;

WHEREAS, the North Carolina Division of Emergency Management has established rules and criteria that allow municipalities to adopt their county’s approved hazard mitigation plan through resolution.

WHEREAS, Guilford County last updated the Guilford County Multi-Jurisdictional Hazard Mitigation plan in 2005.

WHEREAS, the regulations set forth by North Carolina Emergency Management and the Federal Emergency Management agency require a 5 year update period for all Mitigation Plans.

WHEREAS, Guilford County departments have worked closely with the Guilford County Multi-Jurisdictional Hazard Mitigation Committee to develop a countywide hazard mitigation plan that will serve the needs of its residents and visitors;

WHEREAS, the County of Guilford supports Hazard Mitigation Planning as a logical means toward protecting people and property from the potential devastating effects of natural hazards,

NOW, THEREFORE, BE IT RESOLVED that the Guilford County Board of Commissioners adopt, by way of this resolution, the “Guilford County Multi-Jurisdictional Hazard Mitigation Plan” as approved by the North Carolina Division of Emergency Management and the Federal Emergency Management Agency.

Copies of Approved Resolutions:

Guilford County

WHEREAS, the North Carolina General Assembly passed Senate Bill 300 "An Act to Amend the Laws Regarding Emergency Management as Recommended by the Legislative Disaster Response Commission" in June of 2001 that among other provisions requires local governments to have a hazard mitigation plan approved prior to August 1, 2002 in order to received state public assistance funds;

WHEREAS, in October of 2000 the President of the United States signed into law the "Disaster Mitigation Act of 2000" (PL 106-390) to amend the "Robert T. Stafford Disaster Relief and Emergency Act of 1988" which among other provisions requires local governments to adopt a mitigation plan in order to be eligible for hazard mitigation funding;

WHEREAS, the North Carolina Division of Emergency Management has established rules and criteria that allow municipalities to adopt their county's approved hazard mitigation plan through resolution.

WHEREAS, Guilford County last updated the Guilford County Multi-Jurisdictional Hazard Mitigation plan in 2005.

WHEREAS, the regulations set forth by North Carolina Emergency Management and the Federal Emergency Management agency require a 5 year update period for all Mitigation Plans.

WHEREAS, Guilford County departments have worked closely with the Guilford County Multi-Jurisdictional Hazard Mitigation Committee to develop a countywide hazard mitigation plan that will serve the needs of its residents and visitors;

WHEREAS, the County of Guilford supports Hazard Mitigation Planning as a logical means toward protecting people and property from the potential devastating effects of natural hazards,

NOW, THEREFORE, BE IT RESOLVED that the Guilford County Board of Commissioners adopt, by way of this resolution, the "Guilford County Multi-Jurisdictional Hazard Mitigation Plan" as approved by the North Carolina Division of Emergency Management and the Federal Emergency Management Agency.

I HEREBY CERTIFY THAT
THE FOREGOING WAS ADOPTED BY
THE BOARD OF COUNTY COMMISSIONERS
OF GUILFORD COUNTY
ON 9-16-10
BY Crystal Mann
DEPUTY CLERK TO BOARD

Town of Gibsonville

RESOLUTION TOWN OF GIBSONVILLE HAZARD MITIGATION PLAN

WHEREAS, the North Carolina General Assembly passed Senate Bill 300 "An Act to Amend the Laws Regarding Emergency Management as Recommended by the Legislative Disaster Response Commission" in June of 2001 that among other provisions requires local governments to have a hazard mitigation plan approved prior to August 1, 2002 in order to receive state public assistance funds;

WHEREAS, in October of 2000 the President of the United States signed into law the "Disaster Mitigation Act of 2000" (PL 106-390) to amend the "Robert T. Stafford Disaster Relief and Emergency Act of 1988" which among other provisions requires local governments to adopt a mitigation plan in order to be eligible for hazard mitigation funding;

WHEREAS, the North Carolina Division of Emergency Management has established rules and criteria that allow municipalities to adopt their county's approved hazard mitigation plan through resolution.

WHEREAS, Guilford County last updated the Guilford County Multi-Jurisdictional Hazard Mitigation plan in 2005;

WHEREAS, the regulations set forth by North Carolina Emergency Management and the Federal Emergency Management agency require a 5 year update period for all Mitigation Plans.

WHEREAS, the Town of Gibsonville has worked closely with the Guilford County Multi-Jurisdictional Hazard Mitigation Committee to develop a countywide hazard mitigation plan that will serve the needs of its residents and visitors;

WHEREAS, the Town of Gibsonville supports Hazard Mitigation Planning as a logical means toward protecting people and property from the potential devastating effects of natural hazards,

NOW, THEREFORE, BE IT RESOLVED that the Town of Gibsonville Board of Aldermen adopt, by way of this resolution, the "Guilford County Multi-Jurisdictional Hazard Mitigation Plan" as approved by the North Carolina Division of Emergency Management and the Federal Emergency Management Agency.

Adopted on the 8th day of September, 2010.




Mayor

City of Greensboro



RESOLUTION ADOPTING THE GUILFORD COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

WHEREAS, Chapter 166A of the North Carolina General Statutes, "North Carolina Emergency Management Act", requires local governments to adopt a state approved hazard mitigation plan in order to receive state and federal public assistance funds;

WHEREAS, in October of 2000 the President of the United States signed into law the "Disaster Mitigation Act of 2000" (PL 106-390) to amend the "Robert T. Stafford Disaster Relief and Emergency Act of 1988" which among other provisions requires local governments to adopt a mitigation plan in order to be eligible for hazard mitigation funding;

WHEREAS, the North Carolina Division of Emergency Management has established rules and criteria that allow municipalities to adopt their county's approved hazard mitigation plan through resolution.

WHEREAS, Guilford County last updated the Guilford County Multi-Jurisdictional Hazard Mitigation plan in 2005;

WHEREAS, the regulations set forth by North Carolina Emergency Management and the Federal Emergency Management agency require a 5 year update period for all Mitigation Plans.

WHEREAS, Guilford County departments have worked closely with the Guilford County Multi-Jurisdictional Hazard Mitigation Committee to develop a countywide hazard mitigation plan that will serve the needs of its residents and visitors;

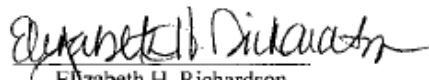
WHEREAS, the County of Guilford supports Hazard Mitigation Planning as a logical means toward protecting people and property from the potential devastating effects of natural hazards.

NOW, THEREFORE, BE IT RESOLVED that the City of Greensboro adopt, by way of this resolution, the "Guilford County Multi-Jurisdictional Hazard Mitigation Plan" as approved by the North Carolina Division of Emergency Management and the Federal Emergency Management Agency.

I, Elizabeth H. Richardson, City Clerk of the City of Greensboro do hereby certify the foregoing to be a true and exact copy of an ordinance adopted by the City Council of the City of Greensboro at its regular meeting held on the 21st day of September, 2010.

Witness my hand and corporate seal of the City of Greensboro, this the 5th day of October, 2010.

SEAL


Elizabeth H. Richardson
City Clerk

City of High Point

WHEREAS, the North Carolina General Assembly passed Senate Bill 300 "An Act to Amend the Laws Regarding Emergency Management as Recommended by the Legislative Disaster Response Commission" in June of 2001 that among other provisions requires local governments to have a hazard mitigation plan approved prior to August 1, 2002 in order to received state public assistance funds;

WHEREAS, in October of 2000 the President of the United States signed into law the "Disaster Mitigation Act of 2000" (PL 106-390) to amend the "Robert T. Stafford Disaster Relief and Emergency Act of 1988" which among other provisions requires local governments to adopt a mitigation plan in order to be eligible for hazard mitigation funding;

WHEREAS, the North Carolina Division of Emergency Management has established rules and criteria that allow municipalities to adopt their county's approved hazard mitigation plan through resolution.

WHEREAS, Guilford County last updated the Guilford County Multi-Jurisdictional Hazard Mitigation plan in 2005;

WHEREAS, the regulations set forth by North Carolina Emergency Management and the Federal Emergency Management agency require a 5 year update period for all Mitigation Plans.

WHEREAS, Guilford County departments have worked closely with the Guilford County Multi-Jurisdictional Hazard Mitigation Committee to develop a countywide hazard mitigation plan that will serve the needs of its residents and visitors;

WHEREAS, the County of Guilford supports Hazard Mitigation Planning as a logical means toward protecting people and property from the potential devastating effects of natural hazards,

NOW, THEREFORE, BE IT RESOLVED that the High Point City Council adopt, by way of this resolution, the "Guilford County Multi-Jurisdictional Hazard Mitigation Plan" as approved by the North Carolina Division of Emergency Management and the Federal Emergency Management Agency.

Adopted this 20th day of September, 2010


Lisa B. Vierling, City Clerk



Town of Jamestown



Settled 1752
JAMESTOWN
NORTH CAROLINA

RESOLUTION ADOPTING GUILFORD COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

WHEREAS, the North Carolina General Assembly passed Senate Bill 300 "An Act to Amend the Laws Regarding Emergency Management as Recommended by the Legislative Disaster Response Commission" in June of 2001 that among other provisions requires local governments to have a hazard mitigation plan approved prior to August 1, 2002 in order to receive state public assistance funds;

WHEREAS, in October of 2000 the President of the United States signed into law the "Disaster Mitigation Act of 2000" (PL 106-390) to amend the "Robert T. Stafford Disaster Relief and Emergency Act of 1988" which among other provisions requires local governments to adopt a mitigation plan in order to be eligible for hazard mitigation funding;

WHEREAS, the North Carolina Division of Emergency Management has established rules and criteria that allow municipalities to adopt their county's approved hazard mitigation plan through resolution;

WHEREAS, Guilford County last updated the Guilford County Multi-Jurisdictional Hazard Mitigation Plan in 2005;

WHEREAS, the regulations set forth by North Carolina Emergency Management and the Federal Emergency Management Agency require a 5 year update period for all Mitigation Plans;

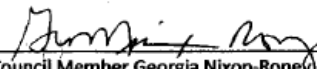
WHEREAS, The Town of Jamestown has worked closely with the Guilford County Multi-Jurisdictional Hazard Mitigation Committee to develop a countywide hazard mitigation plan that will serve the needs of its residents and visitors;

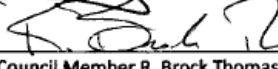
WHEREAS, The Town of Jamestown supports Hazard Mitigation Planning as a logical means toward protecting people and property from the potential devastating effects of natural hazards;

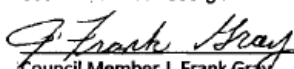
NOW, THEREFORE, BE IT RESOLVED that the Town Council of the Town of Jamestown adopts, by way of this resolution, the "Guilford County Multi-Jurisdictional Hazard Mitigation Plan" as approved by the North Carolina Division of Emergency Management and the Federal Emergency Management Agency.

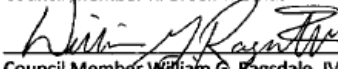
Adopted this 21st day of September, 2010


Mayor Keith L. Volz


Council Member Georgia Nixon-Roney


Council Member R. Brock Thomas


Council Member J. Frank Gray


Council Member William G. Ragsdale, IV

P.O. Box 848
Jamestown, NC 27282

<http://www.jamestown-nc.us>

Tel: (336) 454-1138
Fax: (336) 886-3504

Town of Oak Ridge

Resolution No. R-2010-11

Resolution Adopting the "Guilford County Multi-Jurisdictional Hazard Mitigation Plan"

WHEREAS, the North Carolina General Assembly passed Senate Bill 300 "An Act to Amend the Laws Regarding Emergency Management as Recommended by the Legislative Disaster Response Commission" in June of 2001 that among other provisions requires local governments to have a hazard mitigation plan approved prior to August 1, 2002 in order to received state public assistance funds;

WHEREAS, in October of 2000 the President of the United States signed into law the "Disaster Mitigation Act of 2000" (PL 106-390) to amend the "Robert T. Stafford Disaster Relief and Emergency Act of 1988" which among other provisions requires local governments to adopt a mitigation plan in order to be eligible for hazard mitigation funding;

WHEREAS, the North Carolina Division of Emergency Management has established rules and criteria that allow municipalities to adopt their county's approved hazard mitigation plan through resolution.

WHEREAS, the Town of Oak Ridge last contributed to the updated Guilford County Multi-Jurisdictional Hazard Mitigation plan in 2005;

WHEREAS, the regulations set forth by North Carolina Emergency Management and the Federal Emergency Management agency require a 5 year update period for all Mitigation Plans.

WHEREAS, the Town of Oak Ridge have worked with the Guilford County Multi-Jurisdictional Hazard Mitigation Committee to develop a countywide hazard mitigation plan that will serve the needs of its residents and visitors;

WHEREAS, the Town of Oak Ridge supports Hazard Mitigation Planning as a logical means toward protecting people and property from the potential devastating effects of natural hazards,

NOW, THEREFORE, BE IT RESOLVED that the Oak Ridge Town Council adopt, by way of this resolution, the "Guilford County Multi-Jurisdictional Hazard Mitigation Plan" as approved by the North Carolina Division of Emergency Management and the Federal Emergency Management Agency.

Ray Combs

Ray Combs, Mayor

ATTEST:

Rachel Hawley
Rachel Hawley, Town Clerk



Town of Pleasant Garden



RESOLUTION ADOPTING THE 2010 REVISED GUILFORD COUNTY MULTI-JURIDICTIONAL HAZARD MITIGATION PLAN

WHEREAS, the North Carolina General Assembly passed Senate Bill 300 "*An Act to Amend the Laws Regarding Emergency Management as Recommended by the Legislative Disaster Response Commission*" in June of 2001. One provision among others requires local governments to have a hazard mitigation plan approved prior to August 1, 2002 in order to receive state public assistance funds; and

WHEREAS, in October of 2000 the President of the United States signed into law the "*Disaster Mitigation Act of 2000*" (PL 106-390) to amend the "*Robert T. Stafford Disaster Relief and Emergency Act of 1988*" which, among other provisions, requires local governments to adopt a mitigation plan in order to be eligible for hazard mitigation funding; and

WHEREAS, the North Carolina Division of Emergency Management has established rules and criteria that allow municipalities to adopt their county's approved hazard mitigation plan through resolution; and

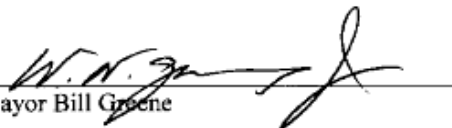
WHEREAS, Guilford County last updated the Guilford County Multi-Jurisdictional Hazard Mitigation plan in 2005; and

WHEREAS, the regulations set forth by North Carolina Emergency Management and the Federal Emergency Management agency require a five-year update period for all Mitigation Plans; and

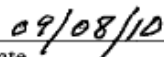
WHEREAS, the Town of Pleasant Garden worked closely with the Guilford County Multi-Jurisdictional Hazard Mitigation Committee to develop a countywide hazard mitigation plan that will serve the needs of its residents and visitors; and

WHEREAS, the Town of Pleasant Garden supports Hazard Mitigation Planning as a logical means toward protecting people and property from the potential devastating effects of natural hazards.

NOW, THEREFORE BE IT RESOLVED that the Town Council of the Town of Pleasant Garden adopts the "*Guilford County Multi-Jurisdictional Hazard Mitigation Plan*" updated in 2010 as approved by the North Carolina Division of Emergency Management and the Federal Emergency Management Agency.



Mayor Bill Greene



Date 09/08/10

Attest: 

Administrator Clerk

Town of Sedalia



Town of Sedalia

6121 Burlington Road • P.O. Box C • Sedalia, NC 27342 • (336) 449-1132 Office • (336) 449-1141 Fax

Guilford County Multi-Jurisdictional Hazard Mitigation Plan Resolution

WHEREAS, the North Carolina General Assembly passed Senate Bill 300 "An Act to Amend the Laws Regarding Emergency Management as Recommended by the Legislative Disaster Response Commission" in June of 2001 that among other provisions requires local governments to have a hazard mitigation plan approved prior to August 1, 2002 in order to received state public assistance funds;

WHEREAS, in October of 2000 the President of the United States signed into law the "Disaster Mitigation Act of 2000" (PL 106-390) to amend the "Robert T. Stafford Disaster Relief and Emergency Act of 1988" which among other provisions requires local governments to adopt a mitigation plan in order to be eligible for hazard mitigation funding;

WHEREAS, the North Carolina Division of Emergency Management has established rules and criteria that allow municipalities to adopt their county's approved hazard mitigation plan through resolution.

WHEREAS, Guilford County last updated the Guilford County Multi-Jurisdictional Hazard Mitigation plan in 2005;

WHEREAS, the regulations set forth by North Carolina Emergency Management and the Federal Emergency Management agency require a 5 year update period for all Mitigation Plans.

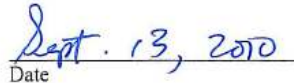
WHEREAS, Guilford County departments have worked closely with the Guilford County Multi-Jurisdictional Hazard Mitigation Committee to develop a countywide hazard mitigation plan that will serve the needs of its residents and visitors;

WHEREAS, the County of Guilford supports Hazard Mitigation Planning as a logical means toward protecting people and property from the potential devastating effects of natural hazards,

NOW, THEREFORE, BE IT RESOLVED that the Town of Sedalia adopt, by way of this resolution, the "Guilford County Multi-Jurisdictional Hazard Mitigation Plan" as approved by the North Carolina Division of Emergency Management and the Federal Emergency Management Agency.



Mayor



Date

"Our Heritage Our Roots"

Town of Stokesdale

A RESOLUTION ADOPTING THE GUILFORD COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

WHEREAS, the North Carolina General Assembly passed Senate Bill 300 "An Act to Amend the Laws Regarding Emergency Management as Recommended by the Legislative Disaster Response Commission" in June of 2001 that among other provisions requires local governments to have a hazard mitigation plan approved prior to August 1, 2002 in order to received state public assistance funds;

WHEREAS, in October of 2000 the President of the United States signed into law the "Disaster Mitigation Act of 2000" (PL 106-390) to amend the "Robert T. Stafford Disaster Relief and Emergency Act of 1988" which among other provisions requires local governments to adopt a mitigation plan in order to be eligible for hazard mitigation funding;

WHEREAS, the North Carolina Division of Emergency Management has established rules and criteria that allow municipalities to adopt their county's approved hazard mitigation plan through resolution.

WHEREAS, Guilford County last updated the Guilford County Multi-Jurisdictional Hazard Mitigation plan in 2005;

WHEREAS, the regulations set forth by North Carolina Emergency Management and the Federal Emergency Management agency require a 5 year update period for all Mitigation Plans.

WHEREAS, the Town of Stokesdale has worked closely with the Guilford County Multi-Jurisdictional Hazard Mitigation Committee to develop a countywide hazard mitigation plan that will serve the needs of its residents and visitors;

WHEREAS, the Town of Stokesdale supports Hazard Mitigation Planning as a logical means toward protecting people and property from the potential devastating effects of natural hazards,

NOW, THEREFORE, BE IT RESOLVED that the Stokesdale Town Council adopts, by way of this resolution, the "Guilford County Multi-Jurisdictional Hazard Mitigation Plan" as approved by the North Carolina Division of Emergency Management and the Federal Emergency Management Agency.



Carolyn L. Joyner
Carolyn L. Joyner, Town Clerk

Randle L. Jones
Randle L. Jones, Mayor

After having been discussed, the foregoing resolution was duly adopted on August 19, 2010. The vote was:
Attaway Aye, Halbrook Aye, Jones Aye, Richardson Aye, Steele Aye

Town of Summerfield

R-2010-008



RESOLUTION ADOPTING AND ENDORSING THE GUILFORD COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

WHEREAS, the North Carolina General Assembly passed Senate Bill 300 "An Act to Amend the Laws Regarding Emergency Management as Recommended by the Legislative Disaster Response Commission" in June of 2001 that among other provisions requires local governments to have a hazard mitigation plan approved prior to August 1, 2002 in order to receive state public assistance funds; and

WHEREAS, in October of 2000 the President of the United States signed into law the "Disaster Mitigation Act of 2000" (PL 106-390) to amend the "Robert T. Stafford Disaster Relief and Emergency Act of 1988" which among other provisions requires local governments to adopt a mitigation plan in order to be eligible for hazard mitigation funding; and

WHEREAS, the North Carolina Division of Emergency Management has established rules and criteria that allow municipalities to adopt their county's approved hazard mitigation plan through resolution.

WHEREAS, Guilford County last updated the Guilford County Multi-Jurisdictional Hazard Mitigation plan in 2005; and

WHEREAS, the regulations set forth by North Carolina Emergency Management and the Federal Emergency Management Agency require a 5 year update period for all Mitigation Plans.

WHEREAS, Guilford County departments have worked closely with the Guilford County Multi-Jurisdictional Hazard Mitigation Committee to develop a countywide hazard mitigation plan that will serve the needs of its residents and visitors;

WHEREAS, the County of Guilford supports Hazard Mitigation Planning as a logical means toward protecting people and property from the potential devastating effects of natural hazards.

NOW, THEREFORE, BE IT RESOLVED that the Town of Summerfield County Board adopt and endorse, the "Guilford County Multi-Jurisdictional Hazard Mitigation Plan" as approved by the North Carolina Division of Emergency Management and the Federal Emergency Management Agency.

Adopted this 12th day of October 2010.

A handwritten signature in dark ink, appearing to read "Mark E. Brown".

Mark E. Brown, Mayor

ATTEST:

A handwritten signature in blue ink, appearing to read "Valarie R. Halvorsen".
Valarie R. Halvorsen, Town Clerk

Town of Whitsett



TOWN OF WHITSETT
NORTH CAROLINA

RESOLUTION FOR ADOPTION OF THE GUILFORD COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

WHEREAS, the North Carolina General Assembly passed Senate Bill 300 "An Act to Amend the Laws Regarding Emergency Management as Recommended by the Legislative Disaster Response Commission" in June of 2001 that among other provisions requires local governments to have a hazard mitigation plan approved prior to August 1, 2002 in order to receive state public assistance funds;

WHEREAS, in October of 2000 the President of the United States signed into law the "Disaster Mitigation Act of 2000" (PL 106-390) to amend the "Robert T. Stafford Disaster Relief and Emergency Act of 1988" which among other provisions requires local governments to adopt a mitigation plan in order to be eligible for hazard mitigation funding;

WHEREAS, the North Carolina Division of Emergency Management has established rules and criteria that allow municipalities to adopt their county's approved hazard mitigation plan through resolution;


WHEREAS, Guilford County last updated the Guilford County Multi-Jurisdictional Hazard Mitigation plan in 2005;

WHEREAS, the regulations set forth by North Carolina Emergency Management and the Federal Emergency Management Agency require a 5 year update period for all Mitigation Plans;

WHEREAS, the Town of Whitsett has worked closely with the Guilford County Multi-Jurisdictional Hazard Mitigation Committee to develop a countywide hazard mitigation plan that will serve the needs of its residents and visitors;

WHEREAS, the Town of Whitsett supports Hazard Mitigation Planning as a logical means toward protecting people and property from the potential devastating effects of natural hazards;

NOW, THEREFORE, BE IT RESOLVED that the Whitsett Town Council adopts, by way of this resolution, the "Guilford County Multi-Jurisdictional Hazard Mitigation Plan" as approved by the North Carolina Division of Emergency Management and the Federal Emergency Management Agency.

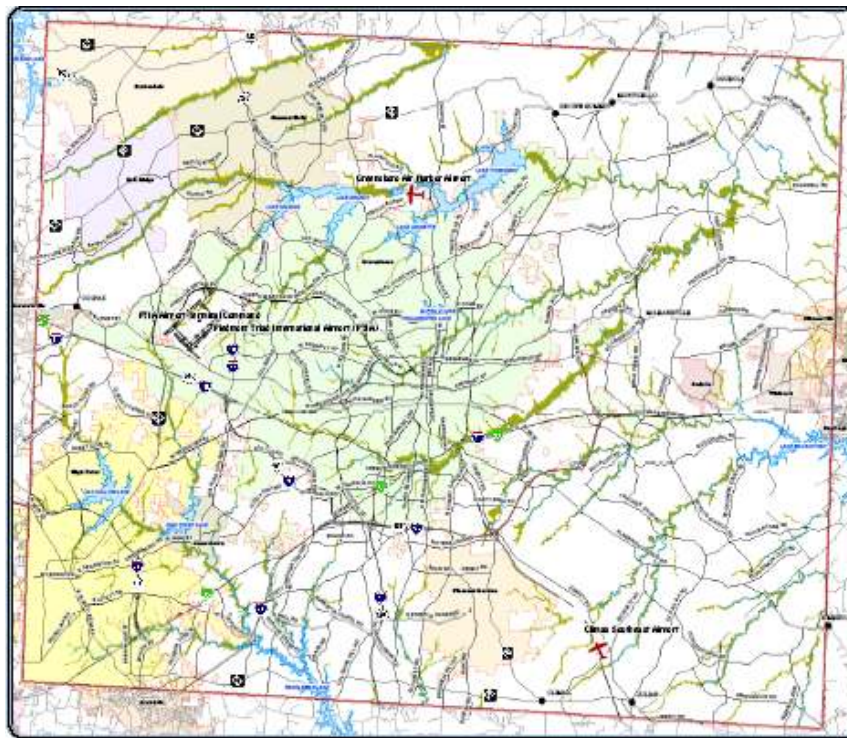

Richard A. Fennell
Mayor, Town of Whitsett



September 14, 2010
Date

Maps

Appendix D –



CRITICAL FACILITIES

Guilford County

NC

Airports

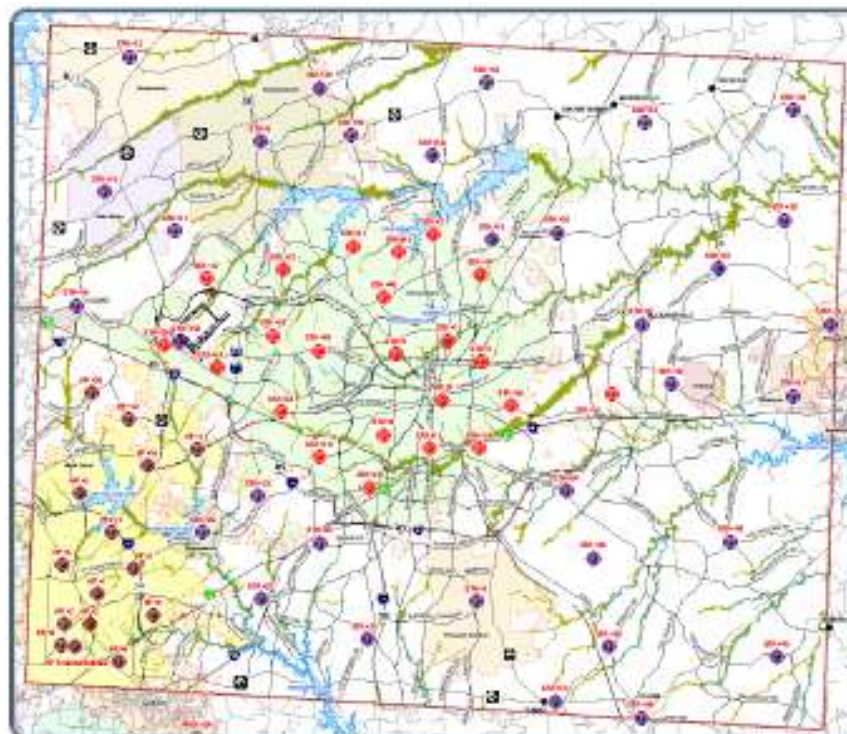
Legend



1 inch = 2.5 miles

Printed Date: 10 December 08

Prepared by: County GIS/County GIS Department



CRITICAL FACILITIES

Guilford County

NC

Fire Stations

Legend



1 inch = 2.5 miles

Printed Date: 10 December 08

Prepared by: County GIS/County GIS Department



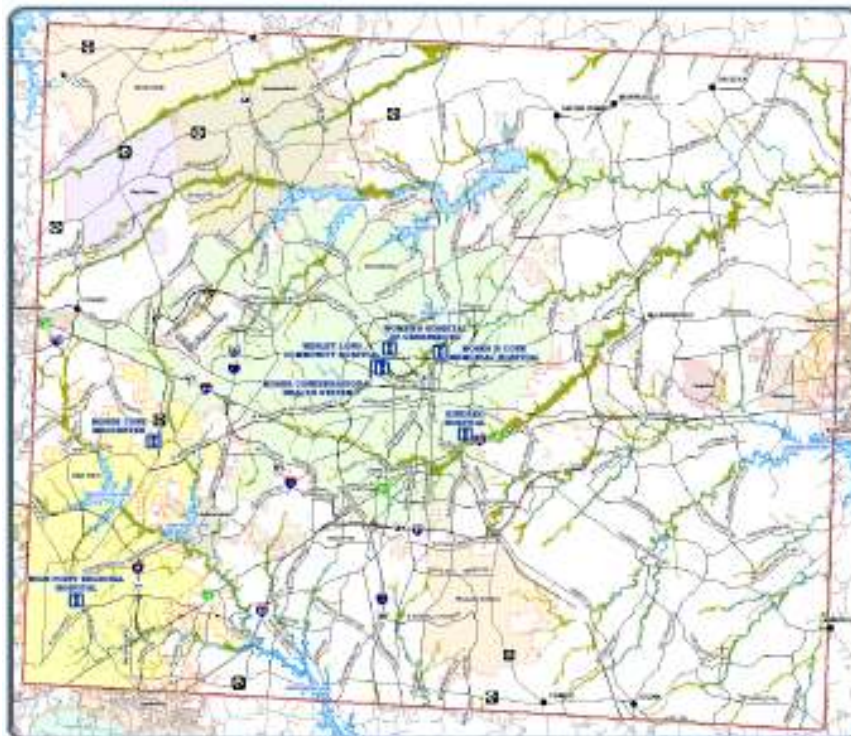
CRITICAL FACILITIES Gutherford County, NC Communications Towers



1 inch = 2.5 miles

Printed Date: 18 December 08

Prepared for: Gwinnett County, GA by: Gwinnett County GIS Department



CRITICAL FACILITIES Gutherford County, NC Hospitals



1 inch = 2.5 miles

Printed Date: 18 December 08

Prepared for: Gwinnett County, GA by: Gwinnett County GIS Department



CRITICAL FACILITIES

Garfield County, NC

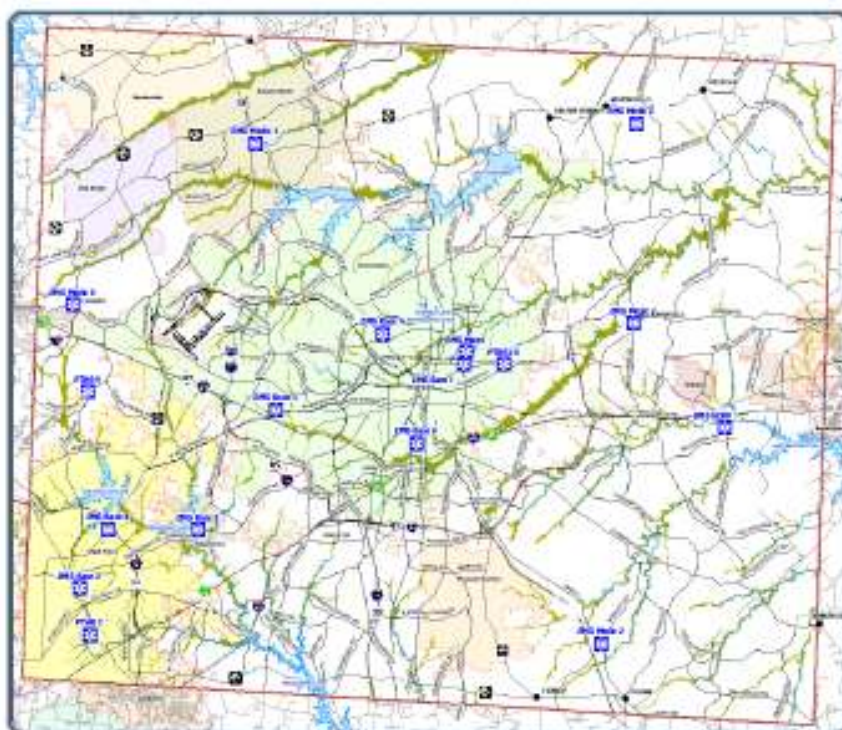
Law Enforcement Facilities



1 inch = 2.5 miles

Printed Date: 21 December 08

Prepared by: Dennis D. Clark, Guilford County, GIS Department



CRITICAL FACILITIES

Garfield County, NC

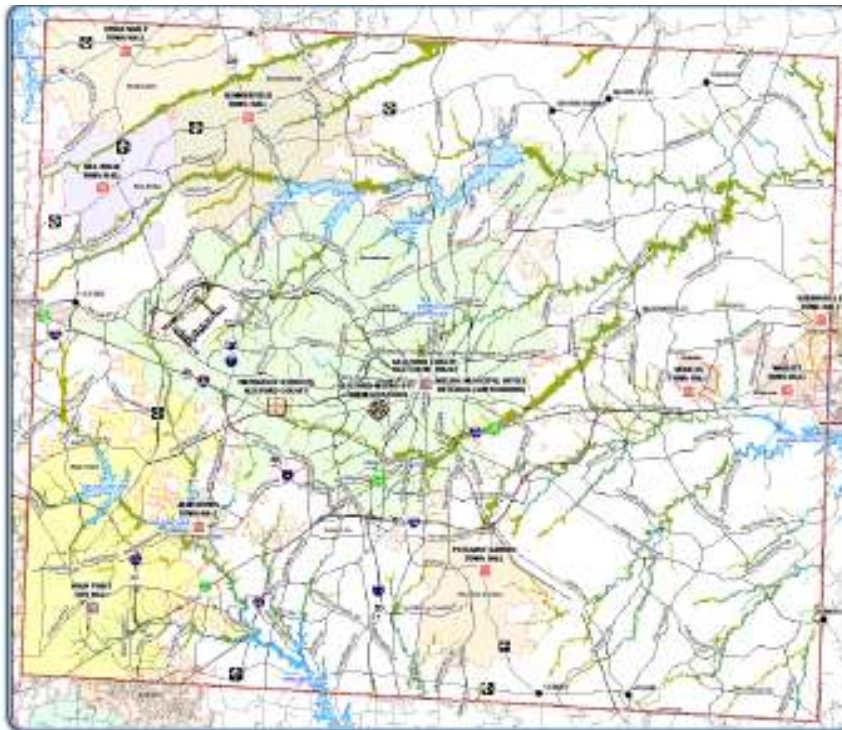
Emergency Medical Services Facilities



1 inch = 2.5 miles

Printed Date: 21 December 08

Prepared by: Dennis D. Clark, Guilford County, GIS Department



CRITICAL FACILITIES Guilford County NC Public Safety Operations and Administration

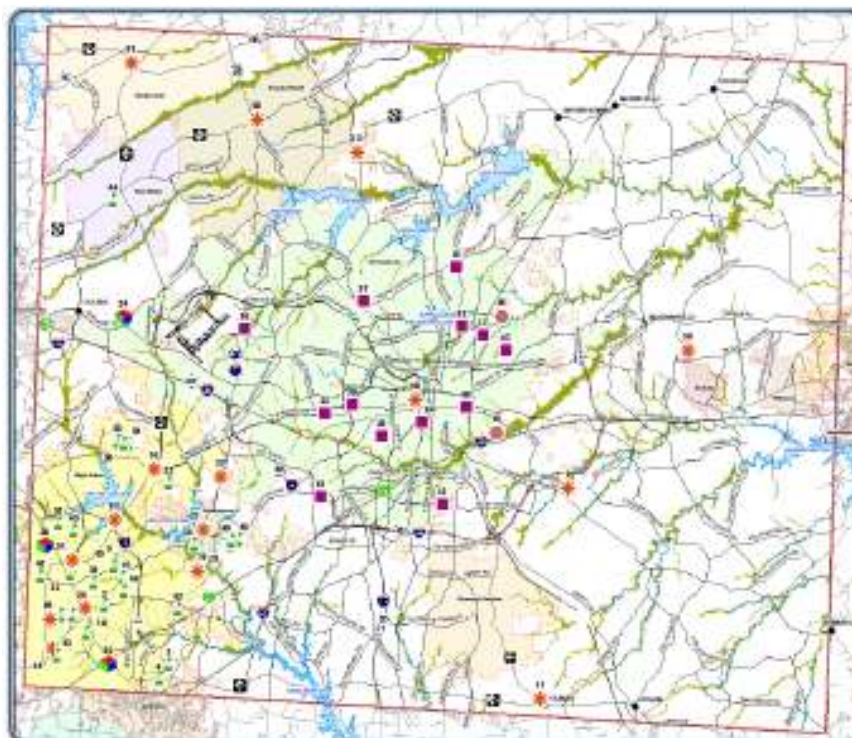
Legend
 Flood Plain



1 inch = 2.5 miles

Revised Date: 14 December 10

Prepared for: State of North Carolina Office of Emergency Management



CRITICAL FACILITIES Guilford County NC Designated Shelters

Legend
 CHURCH
 RECREATION CENTER
 SCHOOL
 SOCIAL HALL
 MULTI-USE CENTER
 FLOOD PLAIN



1 inch = 2.5 miles

Revised Date: 14 December 10

Prepared for: State of North Carolina Office of Emergency Management



CRITICAL FACILITIES Galloway County, NC **Wastewater and Water Treatment Facilities**



1 inch = 2.5 miles

Printed Date: 14 December 06

Prepared by: Dennis D. Clark, Galloway County, NC Department

Appendix E – Community Profile

GUILFORD COUNTY PROFILE

County Government Profile

In January of 1771, the North Carolina General Assembly passed an act creating Guilford County. The new county was named after Francis North, first Earl of Guilford, whose son Frederick was Prime Minister of Great Britain at the time of the county's creation. In 1779, the southern portion of Guilford was taken to form Randolph County, and six years later the northern part was cut off to create Rockingham County, leaving Guilford with its present dimensions.

Guilford County, with a population of 476,642, is the most populous county of the Piedmont Triad region, and the third most populous county in North Carolina. The Piedmont Triad is a twelve county area with a population in excess of 1.5 million located in the north central portion of North Carolina between the Blue Ridge Mountains and the coastal plains. A moderate year-round climate enhances the life-style of the area. The County's 651 square miles contain ten municipalities (Gibsonville, Jamestown, Oak Ridge, Pleasant Garden, Sedalia, Stokesdale, Summerfield, and Whitsett) including two of the state's nine largest cities (Greensboro and High Point).

The Board of County Commissioners is the chief administrative and policymaking body of Guilford County government, and consists of eleven members, nine of whom are elected from districts and two of whom are elected at-large. Board members serve four-year staggered terms. The Board chooses a Chairman and Vice Chairman from among its membership during its first meeting in December.

Major duties of the Board of County Commissioners include:

1. Adoption of an annual budget.
2. Establishment of an annual property tax rate for the County.
3. Appointment of various officials and the following County employees - County Manager, County Attorney, Finance Director, Tax Director and Clerk to the Board.
4. Regulation of land use and zoning outside the jurisdiction of incorporated municipalities.
5. Enactment of local ordinances.
6. Enactment of policies concerning the operation of the County.
7. Planning for County needs.

The Board of County Commissioners does not have complete authority over all the services provided by the County. Many County activities are administered by boards with varying degrees of autonomy and by elected officials who receive their instructions from laws passed by the General Assembly. Some examples are the boards of education, social services, health, mental health, elections, register of deeds, and sheriff. State law requires the Commissioners to appropriate funds in the areas of health, mental health, social services, and public schools. They must also provide for the operation of the offices of the Register of Deeds, Elections and the Sheriff, and are required to allocate funds for the building and maintenance of courtrooms and facilities to house county departments. In addition Guilford County provides services in the areas of emergency services, juvenile detention, planning and zoning, building inspections, animal control, and parks and recreation.

Guilford County was a pioneer among North Carolina counties when it adopted the county manager form of government in 1928. The County Manager is responsible to the Board for

carrying out its policies and ordinances, administration of county affairs, and supervising and coordinating the activities of county departments.

Guilford County continues to have an excellent financial reputation receiving a AAA bond rating from Standard & Poor's Corporation, Aa1 from Moody's, and AA+ from Fitch IBCA on all of its nonrefunded outstanding debt.

Local Economy

Guilford County generally enjoys a favorable economic environment, which until the recent recession has enjoyed consistent stable growth. While gross retail sales information is unavailable, comparable State taxable sales figures are available to approximate retail sales growth. Due to the national streamlined sales tax initiative, taxable sales are reported beginning in fiscal year 2006 rather than gross retail sales. State taxable sales for Guilford County declined 8% in fiscal year 2009, after growing 1.5% and 5.7% respectively, in the two previous fiscal years. Taxable sales are \$5.59 billion for fiscal year 2009 as compared to \$6.08 billion in fiscal year 2008. Guilford County has a labor force of approximately 245,000.

During the recent economic downturn, the Piedmont Triad region was affected more strongly than in the past due to the strong negative impact on traditional manufacturing industries. Guilford County's unemployment rate has historically been below both state and national averages, however, during 2001 this changed as the unemployment rate began to exceed the national average. After tracking the national average for the past two years, the County's unemployment rate has exceeded the national average for much of fiscal 2009. The unemployment rate for Guilford County was 4.7% for calendar 2007 and 6.2% for 2008; the U.S. unemployment rate was 4.6% for 2007 and 5.8% for 2008. Guilford County's unemployment rate of 10.9% for the first six months of 2009 is above the U.S. rate of 9.0% and equal to the North Carolina rate. Announcements of layoffs in excess of one hundred employees per event by large retail, financial and manufacturing concerns have contributed to the increasing unemployment rate.

Guilford County's economy has continued to change and diversify. In December 2008, manufacturing accounted for 14.3% of the County's 242,795 jobs compared to 28.6% of the County's 214,346 jobs in 1980. Manufacturing jobs have declined significantly in furniture and textiles but have shown growth in computer and electronic products, electrical equipment and transportation equipment. Major employers with headquarters or divisions within Guilford County include semiconductor, communications, chemical, bus, truck, pharmaceutical, insurance, aircraft maintenance, healthcare, real estate development, and distribution services. The County is home to two state universities, five private colleges, a private school of law, and a community college with a total enrollment exceeding 47,000 students.

Construction on the fifth national Federal Express hub at the Piedmont Triad International Airport (PTIA) continues with an initial investment estimated at \$300 million in facilities and equipment. A portion of the one million square foot hub began operations in June 2009. Full operations of Phase I of the hub should begin in late 2009 with 350 jobs. The total project calls for approximately 1,500 jobs added by the end of Phase II, drawing other economic development associated with the hub.

Honda Aircraft Company announced in February 2007 that it will locate its world headquarters and production facility at PTIA investing \$100 million in this project and will, over five years, create 600 jobs when the construction hangar is complete in 2011.

The revitalization of downtown Greensboro continues with further development of housing, retail, restaurants and entertainment venues with \$50.9 million in new investments identified over the 2008 fiscal year. The redevelopment of a vacant 17-story office tower including over 100 condominium units, one floor of office space, retail shops and a restaurant opened for occupancy in the spring of 2009.

Mack Trucks, Inc. announced plans in August 2008 to relocate its corporate headquarters and some support functions to Greensboro creating 493 jobs and investing \$17.7 million over the next three years. The local headquarters opened in September 2009 with the relocation of 150 executive positions from Pennsylvania.

Precor announced plans in December 2008 to build a 225,000 square foot \$26.2 million facility in Rock Creek Center to manufacture exercise equipment.

High Point is also experiencing healthy development with new commercial capital investment of \$117.5 million and \$57.7 million of commercial additions or expansions in 2007, while creating or announcing 3,096 jobs. High Point University is undergoing a \$225 million upgrade of its campus and programs over a three-year period.

Trans Tech Pharma and PharmaCore, sister biotech companies, announced in December 2007 that they will be expanding in High Point, which will create 205 new jobs within the next five years while investing over \$23 million.

**Principal Employers and Taxpayers
2009 and 2000**

Employer	2009		2000	
	Employees	% of Total County Employment	Employees	% of Total County Employment
Guilford County School System	9,386	4.02	8,000	3.64
Moses Cone Health Systems	7,440	3.19	6,000	2.73
City of Greensboro	2,958	1.27	2,376	1.08
United States Postal Service	2,800	1.20	2,180	0.99
University of North Carolina at Greensboro	2,800	1.20	1,900	0.87
Guilford County Government	2,648	1.14	2,689	1.22
American Express Credit Card Services	2,100	0.90	3,200	1.46
Bank of America	2,000	0.86	2,070	0.94
United Parcel Service	2,000	0.86	1,900	0.87
High Point Regional Health System	1,863	0.80	1,975	0.90
Lorillard, Inc.	1,800	0.77	2,275	1.04
Citi Cards	1,700	0.73	-	-
AMP, Inc.	-	-	2,500	1.14
Cone Mills Corporation	-	-	2,108	0.96
Sears Roebuck & Co.	-	-	2,097	0.95
Guilford Mills, Inc	-	-	1,800	0.82
Total	39,495	16.94	43,070	19.61

Taxpayer	FY 2009		FY 2000	
	Assessed Value	% of Total Assessed Value	Assessed Value	% of Total Assessed Value
Duke Energy Corporation	\$ 341,721,051	0.77	\$ 301,909,619	1.04
Koury Corporation	\$ 277,192,223	0.62	\$ 305,885,198	1.05
Lorillard Tobacco Company	\$ 270,378,566	0.61	\$ 186,722,191	0.64
RF Micro Devices, Inc.	\$ 214,973,534	0.48	\$ -	-
CBL & Associates Properties, Inc.	\$ 212,855,431	0.48	\$ -	-
TYCO Electronics (AMP)	\$ 186,261,055	0.42	\$ 197,723,452	0.68
International Home Furnishings Center	\$ 184,884,223	0.41	\$ 129,339,000	0.45
BellSouth	\$ 166,939,858	0.37	\$ 212,838,400	0.73
Procter & Gamble Manufacturing Company	\$ 163,788,275	0.37	\$ 170,661,016	0.59
Liberty Property LP	\$ 137,937,077	0.31	\$ -	-
VF Corporation	\$ -	-	\$ 136,239,989	0.47
Highwoods/Forsyth limited	\$ -	-	\$ 137,953,000	0.48
Guilford Mills, Inc.	\$ -	-	\$ 116,555,181	0.40
Total	\$ 2,156,931,293	4.84	\$ 1,895,827,046	6.53

Source: Draft Guilford County Annual Financial Report, FY 2009

Guilford County (NC)

August 2009



County Profile Contact (919) 715-6374



Commerce Economic Development Contact (919) 733-4977

Demographics

Population & Growth	Population	Annual Growth Rate
2013 Total Population	503,256	1.5%
2008 Total Population	468,153	1.3%
2000 Total Population	421,048	
July 2007 Certified Population Estimate	460,780	
July 2007 Certified Population Growth	39,732	
July 2007 Certified Net Migration	22,009	
Urban/Rural Representation		Urban/Rural Percent
2000 Total Population: Urban - inside Urbanized Area	352,859	83.8%
2000 Total Population: Urban - inside Urbanized Clusters	0	0.0%
2000 Total Population: Rural - Farm	1,346	0.3%
2000 Total Population: Rural - Nonfarm	66,843	15.9%
Estimated Population by Age		Pop by Age, % Est.
2013 Median Age	38	
2008 Median Age	37	
2000 Median Age	35	
2008 Total Pop 0-19	122,912	26.3%
2008 Total Pop 20-29	67,921	14.5%
2008 Total Pop 30-39	65,330	14.0%
2008 Total Pop 40-49	70,206	15.0%
2008 Total Pop 50-59	62,559	13.4%
2008 Total Pop 60+	79,225	16.9%

Working Commuters, 2000 Census

Workers, Travel Time		Workers, By Transportation	
Avg Travel Time, Not at Home	21	Worker Mode, Base	213,079
Workers Not Working at Home	207,192	Work at Home	5,887
Travel Time to Work: < 5 minutes	4,968	Drove Car/Truck/Van Alone	173,063
Travel Time to Work: 5-9 minutes	20,527	Carpooled Car/Truck/Van	25,615
Travel Time to Work: 10-14 minutes	37,331	Bus/Trolley Bus	2,185
Travel Time to Work: 15-19 minutes	45,166	Streetcar/Trolley Car	91
Travel Time to Work: 20-24 minutes	38,672	Subway/Elevated	51
Travel Time to Work: 25-29 minutes	12,792	Railroad	76
Travel Time to Work: 30-34 minutes	25,060	Ferryboat	6
Travel Time to Work: 35-39 minutes	4,064	Taxicab	297
Travel Time to Work: 40-44 minutes	3,763	Motorcycle	132
Travel Time to Work: 45-59 minutes	6,794	Bicycle	364
Travel Time to Work: 60-89 minutes	4,448	Walked	3,688
Travel Time to Work: 90+ minutes	3,607	Other Means	1,624

Travel to Work	Commuters	Percent by Residence
Worked in State/County of Residence	187,150	87.8%
Worked in State/Outside County of Residence	23,997	11.3%
Worked Outside State of Residence	1,932	0.9%

Education

		Pop Age 25+, %
2008-09 Kindergarten-12th Enrollment	72,473	
2008 Average SAT score (2400 scale)	1,471	
2008 Percent of Graduates taking SAT	65%	
2006-07 Higher Education Completions	3,215	
2006-07 Higher Education Total Enrollment	54,665	
2008 Proj Education Attainment - At Least High School Graduate	265,645	85.6%
2008 Proj Education Attainment - At Least Bachelor's Degree	100,405	32.4%

Housing

		Growth / Appreciation Est
2013 Total Housing	227,173	9.1%
2008 Total Housing	208,143	
2013 Median Value of Owner Occupied Housing	\$154,419	8.2%
2008 Median Value of Owner Occupied Housing	\$142,782	26.8%
2008 Owner Occupied Housing	119,186	
2008 Renter Occupied Housing	70,768	
2008 Total Households	189,954	
2000 Median Year Housing Structure Built	1975	

Income

		Growth Est or Total %/ Percent
2013 Median Family Income	\$78,822	16.5%
2008 Median Family Income	\$67,650	28.0%
2000 Median Family Income	\$52,851	
2013 Median Household Income	\$64,855	14.2%
2008 Median Household Income	\$56,815	32.6%
2000 Median Household Income	\$42,860	
2008 Median Disposable Income	\$45,314	
2008-2013 Per Capita Income: Annual Compound Growth Rate %		2.9%
2013 Per Capita Income	\$35,982	15.6%
2008 Per Capita Income	\$31,135	33.4%
2000 Per Capita Income	\$23,340	
2000 Total Pop with Income Below Poverty Level	43,227	
2000 Percent of Pop with Income Below Poverty Level		10.6%

Employment / Unemployment

	Year to Date	2008 Annual
2009Q1 Employment	216,000	233,211
2009Q1 Unemployment	25,791	15,469
2009Q1 Unemployment Rate	10.7%	6.2%
2009Q2 Announced Job Creation	155	2,239
2009Q2 Total Announced Investments (\$mil)	\$22	\$285
Jul2009 Lost Jobs, Closings & Layoffs	1,417	2,439
Jul2009 Establishment Events, Closings & Layoffs	52	74

Employment / Wages by Industry	2008 4th Qtr Employment	2008 Annual Employment	2008 4th Qtr Avg Weekly Wage	2008 Avg Weekly Wage
Total All Industries	277,746	278,686	\$797	\$768
Total Government	26,023	25,224	\$888	\$837
Total Private Industry	244,709	246,709	\$785	\$757
Agriculture Forestry Fishing & Hunting Mining	256	249	\$590	\$568
Utilities	256	202	\$1,366	\$1,101
Construction	414	416	\$1,180	\$1,223
Manufacturing	12,760	13,174	\$880	\$807
Wholesale Trade	35,011	36,073	\$998	\$962
Retail Trade	16,686	17,077	\$1,046	\$979
Transportation and Warehousing	30,762	30,533	\$511	\$511
Information	17,317	17,337	\$853	\$808
Finance and Insurance	5,873	5,758	\$983	\$1,007
Real Estate and Rental and Leasing	15,554	15,515	\$1,007	\$1,043
Professional and Technical Services	3,707	3,693	\$895	\$809
Management of Companies, Enterprises	11,479	11,650	\$1,206	\$1,070
Administrative and Waste Services	7,101	6,988	\$1,181	\$1,461
Educational Services	22,377	23,036	\$491	\$461
Health Care and Social Assistance	16,688	15,437	\$733	\$721
Arts, Entertainment and Recreation	31,290	30,964	\$905	\$818
Accommodation and Food Services	2,423	2,916	\$396	\$342
Other Services Ex. Public Admin	22,860	23,139	\$280	\$274
Public Administration	6,580	6,675	\$568	\$557
Unclassified	10,640	10,474	\$919	\$864
	698	627	\$985	\$918

Commercial/Retail/Industrial

Local Businesses		Local Retail Business	
2009 Available Industrial Buildings	196	2008 Total Retail Sales (With Food/Drink) (\$mil)	\$7,595.7
2008 Establishments: Total Private Industry	14,499	2008 Total Retail Businesses (With Food/Drink)	4,811
2008 Establishments: Manufacturing	731	2008 Avg Sales/Business Total (with Food/Drink)	\$1,578,828

Quality of Life

Taxes		Childcare	
FY2009-10 Property Tax Rate per \$100 Value	\$0.7374	Jun2009 Licensed Child Care Facilities	540
FY2007-08 Annual Taxable Retail Sales (\$mil)	\$6,078.0	Jun2009 Licensed Child Care Enrollment	17,639
2009 Tier designation	3		
Weather		Healthcare Providers	
Annual Rainfall	49	2007 Number of Physicians	1,117
Annual Snowfall	10	2007 Physicians per 10,000 population	24.2
Average Annual Temperature	50	2007 RNs per 10,000 population	113.7
Average Annual High Temperature	72	2007 Dentists per 10,000 population	5.3
Average Annual Low Temperature	49	2007 Pharmacists per 10,000 population	9.8

Sources:

ESRI for demographics, working population, educational attainment, housing, income, crime, weather, and retail data. <http://www.esri.com>

NC Dept. of Education and various state education departments for SAT data by county system. <http://www.ncpublicschools.org>

US Dept. of Education, National Center for Education Statistics for higher education data. <http://nces.ed.gov/ipeds/>

NC Commerce for announced new jobs and investment, NC tiers, and number of industrial buildings. <http://www.nccommerce.com/en>

NC Employment Security Commission for lost jobs and affected establishments data. <http://www.ncesc.com>

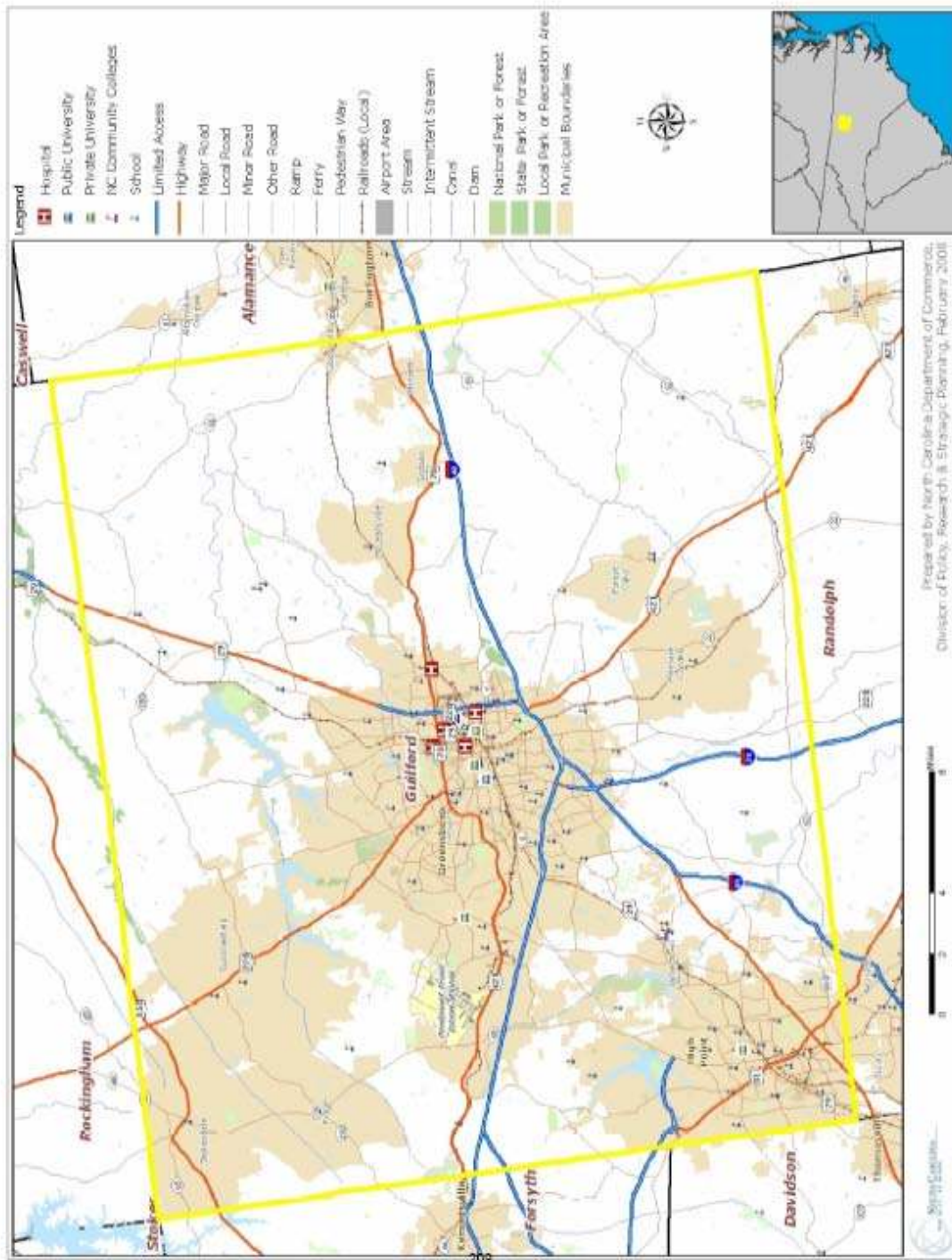
NC Dept. of Health & Human Services for childcare data. <http://www.ncdhhs.gov/>

UNC Sheps Center for healthcare provider statistics. <http://www.shepscenter.unc.edu/>

US Bureau of Labor Statistics for employment and unemployment, wages and establishments by industry. <http://www.bls.gov>

Notes:

Data are the latest available at the date the profile was prepared. SAT scores use the new scoring system including a writing test for a perfect score of 2400 and represent county systems. ESRI 2008/2013 data are projections. Some data may be available only for North Carolina. For further details or questions, please check the Data Sources Guide at https://edis.commerce.state.nc.us/docs/bibliography/Data_Sources_Guide.pdf.



Appendix F: Guilford County Comprehensive Plan: Future Land Use Element

“Respectful of Our Past... Optimistic for Our Future” 5

Goal #1: Guilford County shall position itself to accommodate new growth and redevelopment that is efficient and cost-effective; improves the quality of life for residents; enhances economic vitality; is respectful to citizen based Area Plans; supports creativity and innovative design; and protects and preserves the natural, historic, and cultural resources and assets of the County.

Objective 1.1: Continue to use community-based area plans as the cornerstone for future land use and policy decisions.

Policy 1.1.1: Planning staff will continue to utilize the future land uses depicted on citizen based Area Plans, in conjunction with the rezoning guidance matrix, as the basis for land use and policy recommendations. *[Planning staff/Planning Board, On-going]*

Policy 1.1.2: Existing Area Plans will be updated to reflect current jurisdictional boundaries, roadway improvements (existing and proposed), and emerging commercial areas, based on the following schedule: *[Planning staff/Planning Board, Per schedule]*

Southwest (1989) – fall 2006

Rock Creek (1988) – winter 2007

Alamance (1994) – spring 2007

Northwest (1998) – summer 2007

Northeast (2000) – summer 2007

Airport (2002) – fall 2007

Southern (2002) – fall 2007

Policy 1.1.3: Prepare, in conjunction with a citizen group, a Northern Lakes Area Plan, beginning in September 2006. *[Planning staff/Citizen group, beginning fall 2006]*

Policy 1.1.3.1: Develop consistent Land Use classifications for nonresidential uses in conjunction with Area Plan updates. *[Planning staff, per Policy 1.1.2 schedule]*

Policy 1.1.3.2: Utilize consistent Land Use classifications to develop a rezoning guidance matrix for non-residential uses. *[Planning staff, fall 2007]*

Policy 1.1.4: Pursue a thorough review of Area Plan land use designations, and seek to consolidate into four Quadrant

Plans beginning January 2009, as follows: *[Planning staff/Planning Board, per schedule below]*

Southwest (south of I-40, west of 220) – 2009

Southeast (south of I-40/I-85, east of 220) – 2009

Northwest (north of I-40, west of Church Street) – 2010

Northeast (north of I-40/I-85, east of Church Street) -2010

Policy 1.1.5: At a minimum update Quadrant Plans every two years after adoption to reflect jurisdictional changes, and roadway / infrastructure improvements. More thorough updates or Plan amendments may be warranted. *[Planning staff/Planning Board, 2011]*

Objective 1.2: Encourage coordination among responsible entities in the timing of infrastructure improvements to afford the greatest latitude in future development options.

Policy 1.2.1: Review availability and delivery of essential public services, including roads, schools and water/wastewater facilities, in conjunction with land use petitions and applications. *[Planning staff/Service providers, On-going]* (See Housing policy 2.2.1)

Policy 1.2.2: Guilford County will seek and maintain active participation on all MPO's serving the County. *[Planning staff, Ongoing]* (See Transportation policy 2.1.1)

Policy 1.2.3: Investigate in conjunction with the Guilford County Public Schools collaborative school siting planning and evaluation methods currently utilized in other North Carolina counties. *[Planning staff/School District, initiate winter 2007]* (See Governmental Coordination policy 1.1.4)

Policy 1.2.4: Work closely with the cities of Greensboro, High Point and Burlington to track infrastructure upgrades, existing and proposed distribution lines, and available capacities for water and wastewater facilities. *[Planning staff, initiate tracking system winter 2007]* (See Housing policy 2.2.2)

Objective 1.3: Complement and enhance the economic vitality of rural Guilford County farms while providing for expanded economic opportunities, through prudent regulations and sound land use decisions. (Also see Housing objective 1.2)

Policy 1.3.1: Planning staff will investigate and develop text amendments, as deemed appropriate, to both Rural Family Occupation and Agricultural Tourism sections of the Guilford County Development Ordinance. Particular emphasis will be paid to bona fide farm sites. *[Planning staff/Planning Board, fall 2006]*

Policy 1.3.2: Review and recommend additional permitted commercial uses, with or without development standards, to the AG section of the Table of Permitted Uses. *[Planning staff/Planning Board, fall 2006]*

Policy 1.3.3: Research transfer and/or purchase of development rights policies and procedures for presentation to appropriate governing bodies. *[Planning staff, spring 2009]* (See Housing policy 2.4.6)

Objective 1.4: Seek coordination and compatibility of land use plans among Guilford County, its incorporated cities and towns, and neighboring jurisdictions.

Policy 1.4.1: Coordinate comprehensive planning efforts with Greensboro, High Point, incorporated towns, and neighboring jurisdictions to promote thoughtful and complementary land development patterns and policies. *[Planning staff/Partners, On-going]* (See Governmental Coordination policies 1.2.2 and 1.2.3)

Policy 1.4.2: Collaborate with the City of Greensboro to achieve meaningful advancement of their adopted “Growth at the Fringe” policies contained in their 2025 Comprehensive Plan. *[Planning staff/City staff, On-going]* (See Housing 1.2.1)

Policy 1.4.3: Reference adopted Land Use Plans and recommended uses and densities/intensities, when applicable, in conjunction with rezoning staff reports presented to the Planning Board. *[Planning staff, On-going]*

Policy 1.4.4: Encourage participation by representatives of local jurisdictions during the update process for Area Plans. *[Planning staff, per update schedules]*

Objective 1.5: Recognize and respect the unique characteristics of Guilford County’s unincorporated and emerging communities.

Policy 1.5.1: In conjunction with Policy 1.1.4, staff will conduct subarea plans and studies for existing and emerging communities as needed. *[Planning staff, per Area Plan schedules]*

Policy 1.5.2: Investigate the use of design standards and developer incentives to maintain and enhance the character of Guilford County’s historic crossroads communities and emerging activity centers. *[Planning staff/Design Community, spring 2007]*

Policy 1.5.3: Consider traditional neighborhood design principles in appropriate locations, including mixed uses, pedestrian friendly streets and commercial areas, and transit-oriented development. *[Planning staff/Design Community, fall 2007]* (See Housing policies 1.1.1 and 1.2.1)

Objective 1.6: Guilford County will be an active partner in the planning and implementation of large-scale multi-jurisdictional land use initiatives such as the Heart of the Triad and transit-oriented development.

Policy 1.6.1: Provide policy and technical assistance and staff support for regional land use planning efforts. *[Planning staff, Ongoing]*

Policy 1.6.2: Recommend Development Ordinance amendments and Area/Quadrant Plan changes to support and implement regional plans endorsed and adopted by Guilford County. *[Planning staff, when deemed appropriate]*

Policy 1.6.3: Identify interim growth management strategies to provide viable planning alternatives to support and advance long range regional land use plans (e.g., Heart of the Triad). *[Planning staff/PART, On-going]* (See Transportation 2.1.2 and Governmental Coordination 1.3.3)

Policy 1.6.4: Continually seek opportunities for joint collaboration to attract new economic growth and prosperity for the County and the Triad region. *[CED/Economic Development Partners, On-going]* (See Transportation objectives 2.3)